



# FCC Test Report

## FCC Part 15.225

**FOR:**

**CDMA W63CA**

**FCC ID: TYKNX6420**

**TEST REPORT #: EMC\_CET10\_037\_15.225\_Rev2**

**DATE: 2008-8-22**



FCC listed  
A2LA Accredited

IC recognized #  
3462B

**CETECOM Inc.**

411 Dixon Landing Road • Milpitas, CA 95035 • U.S.A.

Phone: +1 (408) 586 6200 • Fax: +1 (408) 586 6299 • E-mail: [info@cetecomusa.com](mailto:info@cetecomusa.com) • <http://www.cetecom.com>

CETECOM Inc. is a Delaware Corporation with Corporation number: 2113686

Board of Directors: Dr. Harald Ansorge, Dr. Klaus Matkey, Hans Peter May



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**1 Assessment**

**The following is in compliance with the applicable criteria specified in FCC rules Part 15.225 of the Code of Federal Regulations.**

Company	Description	Model #
Casio Hitachi Mobile Communications Co., Ltd.	The cellular phone for the global roaming of the CDMA method of 3G equipped with the Bluetooth function and the FeliCa function sold in Japan.	CDMA W63CA

**This Report Reviewed by:**

**Satya Radhakrishna**  
 (EMC Project Engineer)

**2008-8-22 EMC & Radio**

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Date	Section	Name	Signature
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The test results of this test report relate exclusively to the test item specified in Identification of the Equipment under Test. The CETECOM Inc. USA does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item. The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of the CETECOM Inc USA.

**This report is prepared by:**

**Marc Douat**  
 (EMC Project Engineer)

**2008-8-22 EMC & Radio**

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Date	Section	Name	Signature
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## 2 Administrative Data

### 2.1 Identification of the Testing Laboratory Issuing the EMC Test Report

Company Name:	<b>CETECOM Inc.</b>
Department:	<b>EMC</b>
Address:	<b>411 Dixon Landing Road Milpitas, CA 95035 U.S.A.</b>
Telephone:	<b>+1 (408) 586 6200</b>
Fax:	<b>+1 (408) 586 6299</b>
Responsible Test Lab Manager:	<b>Lothar Schmidt</b>
Responsible Project Leader:	<b>Marc Douat</b>
Date of test:	<b>2008-7-08 to 2008-8-12</b>

### 2.2 Identification of the Client

APPLICANT	
<b>Applicant (Company Name)</b>	<b>Casio Hitachi Mobile Communications Co., Ltd.</b>
<b>Street Address</b>	<b>2-229-1, Sakuragaoka</b>
<b>City/Zip Code</b>	<b>Higashiyamato-shi, Tokyo 207-8501</b>
<b>Country</b>	<b>Japan</b>
<b>Contact Person</b>	<b>Toshiaki Otsuka</b>
<b>Telephone</b>	<b>+81-42-516-2184</b>
<b>Fax</b>	<b>+81-42-516-2505</b>
<b>e-mail</b>	<b>otsuka@ch-mobile.co.jp</b>

## 3 Equipment under Test (EUT)

### 3.1 Specification of the Equipment under Test

Marketing Name:	<b>CDMA W63CA</b>
Description:	<b>The cellular phone for the global roaming of the CDMA method of 3G equipped with the Bluetooth function and the FeliCa function sold in Japan.</b>

Model No:	CDMA W63CA
Antenna Type:	Integral
Type(s) of Modulation:	ASK, FSK
Frequency of Operation:	13.56MHz
Field Strength at 13.56MHz at a distance of 30 meters	10dB $\mu$ V/m
Numbers of Channels:	1
Equipment Classification: (CLASS)	<input type="checkbox"/> FIXED <input type="checkbox"/> VEHICULAR <input checked="" type="checkbox"/> PORTABLE <input type="checkbox"/> MODULE
Equipment Classification: (POWER(AC MAINS))	<input type="checkbox"/> 110VAC (GROUND) <input checked="" type="checkbox"/> 110VAC (NO GROUND) <input type="checkbox"/> 12VDC <input checked="" type="checkbox"/> 3.0/3.8/4.2VDC Li battery

### 3.2 Identification of the Equipment Under Test (EUT)

EUT #	TYPE	MODEL	SERIAL #	HW Version
1	EUT	CDMA W63CA	SCADH000121	PWB-6420-MAIN20S
2	EUT	CDMA W63CA	SCADI000132	PWB-6420-MAIN20S1
3	EUT	CDMA W63CA	SCADJ000131	PWB-6420-MAIN20S1

SW version: v008a

### 3.3 Identification of Accessory equipment

AE #	TYPE	MODEL
1	AC Adapter	0203PQA
2	Cradle	63CAPUA
3	USB Cable	N/A
4	Headset	N/A



#### 4 Subject Of Investigation

The objective of the measurements done by Cetecom Inc. was to measure the performance of the EUT as specified by requirements listed in FCC rules Part 15.225 of Title 47 of the Code of Federal Regulations. The maximization of portable equipment is conducted in accordance with ANSI C63.4.

All testing was performed on the product referred to in Section 3 as EUT.

Measurements below 30MHz were performed with a loop antenna at 3 meters then extrapolated to the appropriate measurement distance.



**5 Measurements (Radiated)**

**5.1 TRANSMITTER SPURIOUS EMISSIONS RADIATED § 15.225/15.209**

**5.1.1 LIMITS**

(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
<sup>1</sup> 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	( <sup>2</sup> )
13.36 - 13.41			

\*PEAK LIMIT= 74dBuV/m

\*AVG. LIMIT= 54dBuV/m

**NOTE:**

1. The radiated emissions were done with different settings, using the relevant pre-amplifiers for the relevant frequency ranges. This is the reason that the graphs show different noise levels.
2. All measurements are done in peak mode using an average limit , unless specified with the plots.



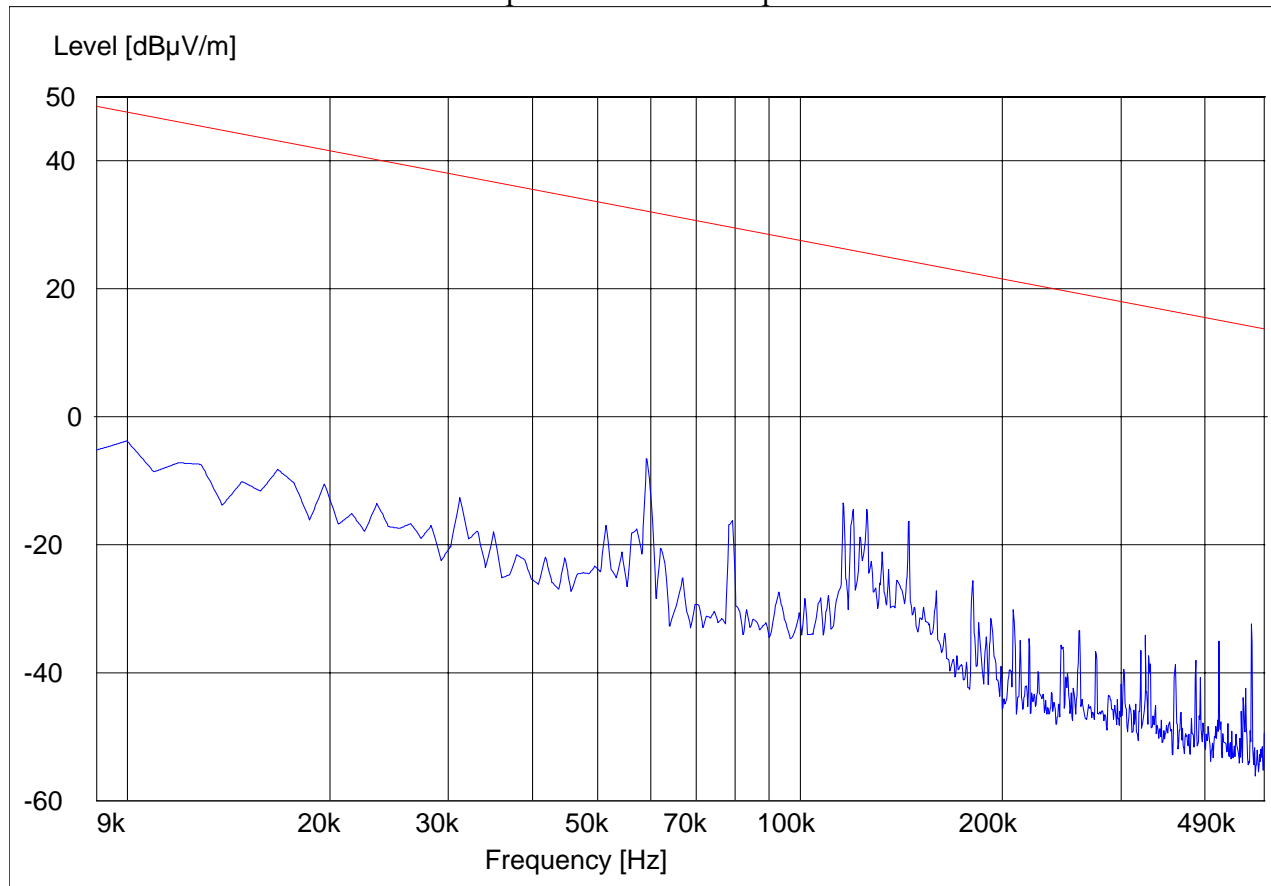
### 5.1.2 RESULTS

#### 9kHz to 490kHz

EUT: W63CA  
Customer:: Casio Hitachi  
Test Mode: RFID  
ANT Orientation: Loop  
EUT Orientation: V  
Test Engineer: Marc  
Voltage: AC Adapter and Battery  
Comments:

#### ***SWEEP TABLE: "FCC15.209<490k\_Loop"***

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
9.0 kHz	490.0 kHz	MaxPeak	Coupled	200 Hz	Loop 6512E







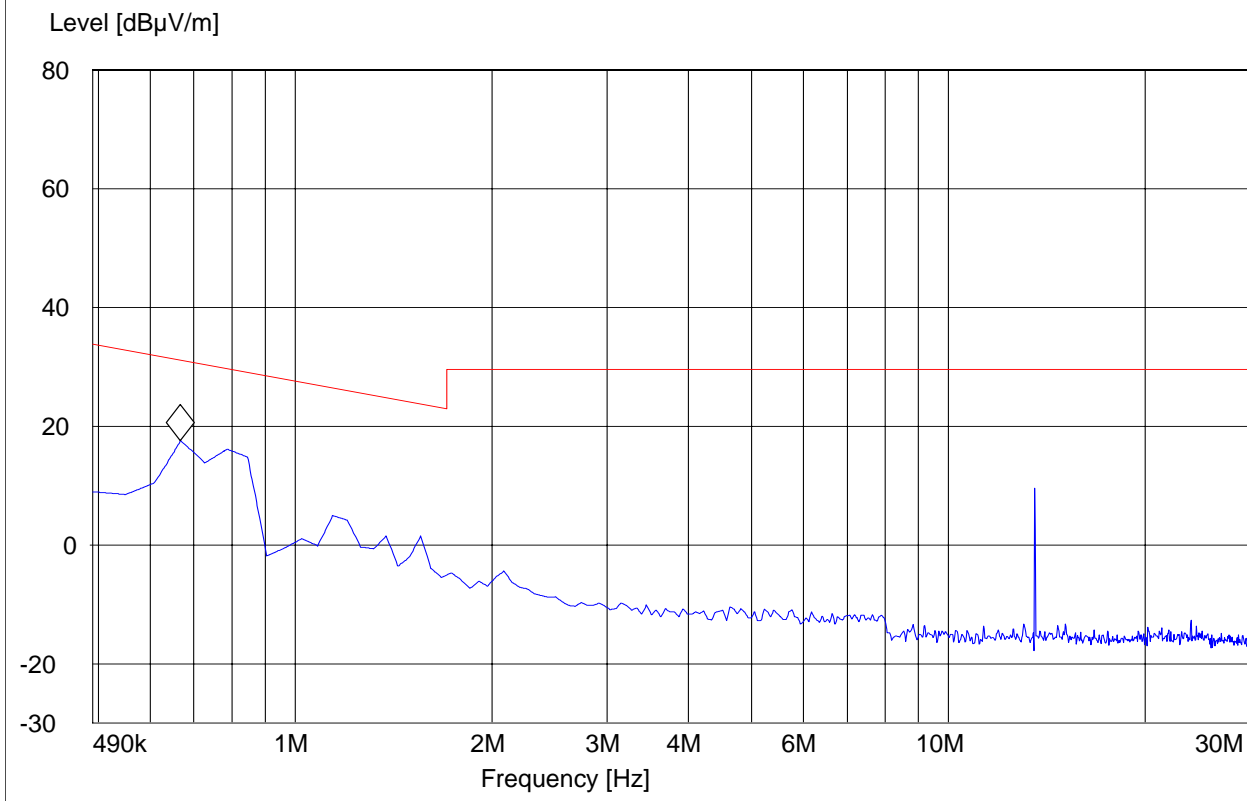
**490kHz to 30MHz**

EUT: W63CA  
Customer:: Casio Hitachi  
Test Mode: RFID  
ANT Orientation: Loop  
EUT Orientation: V  
Test Engineer: Marc  
Voltage: AC Adapter and Battery  
Comments:

***SWEEP TABLE: "FCC15.209>490k\_Loop"***

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
490.0 kHz	30.0 MHz	MaxPeak	Coupled	10 kHz	Loop 6512E

Marker: 667.415 kHz 17.55 dBµV/m



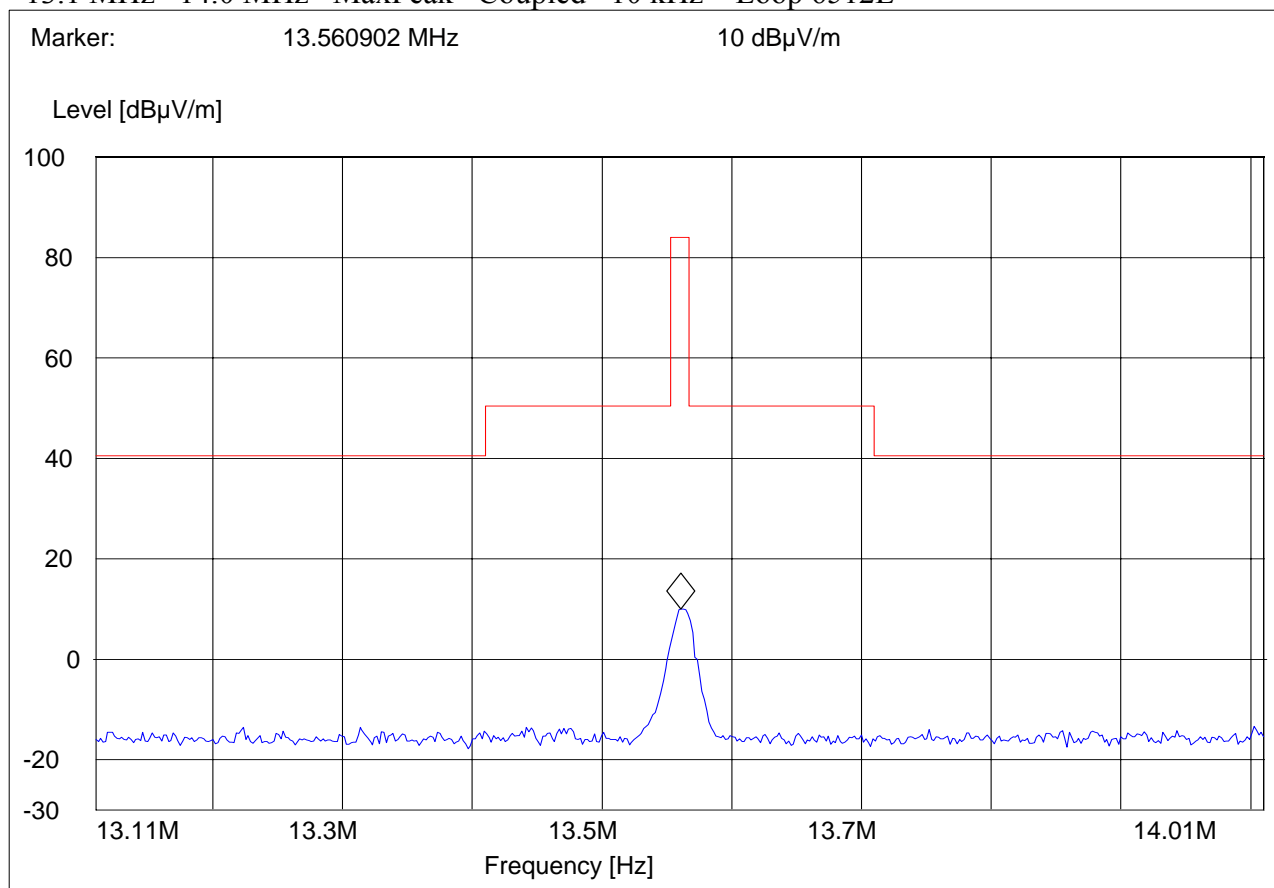


**13MHz to 14MHz**

EUT: W63CA  
Customer:: Casio Hitachi  
Test Mode: RFID  
ANT Orientation: Loop  
EUT Orientation: V  
Test Engineer: Marc  
Voltage: AC Adapter and Battery  
Comments: Max with phone open at 0°

***SWEEP TABLE: "FCC15.225-13M\_Loop"***

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
13.1 MHz	14.0 MHz	MaxPeak	Coupled	10 kHz	Loop 6512E



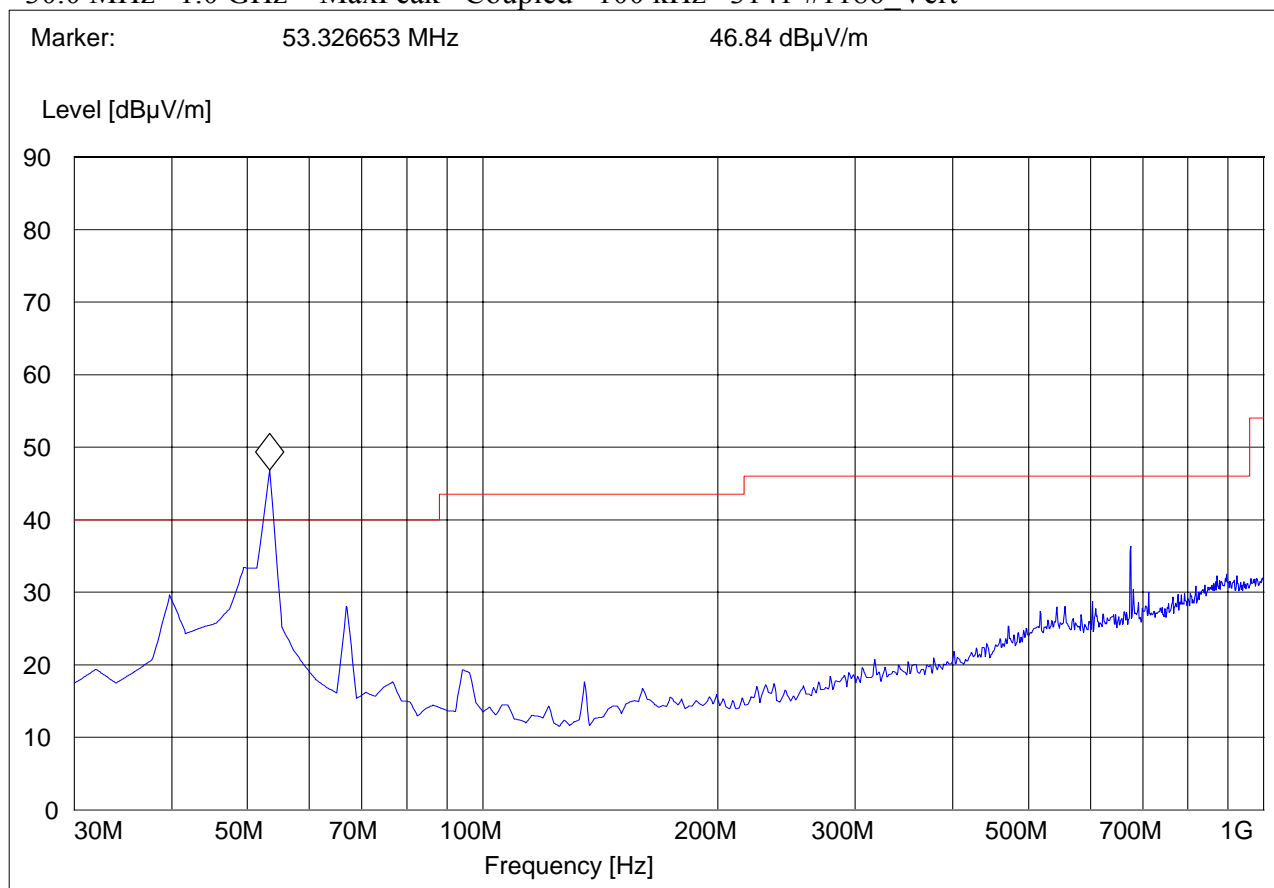


**30MHz to 1GHz Vertical**

EUT: W62CA  
Customer:: CASIO HITACHI  
Test Mode: RFID  
ANT Orientation: V  
EUT Orientation: V  
Test Engineer: MARC  
Voltage: AC ADAPTER AND BATTERY  
Comments: 53.33 MHz QP = 39.02 dBuV/m

***SWEEP TABLE: "FCC15.247\_30M-1G\_Ver"***

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	MaxPeak	Coupled	100 kHz	3141-#1186 Vert



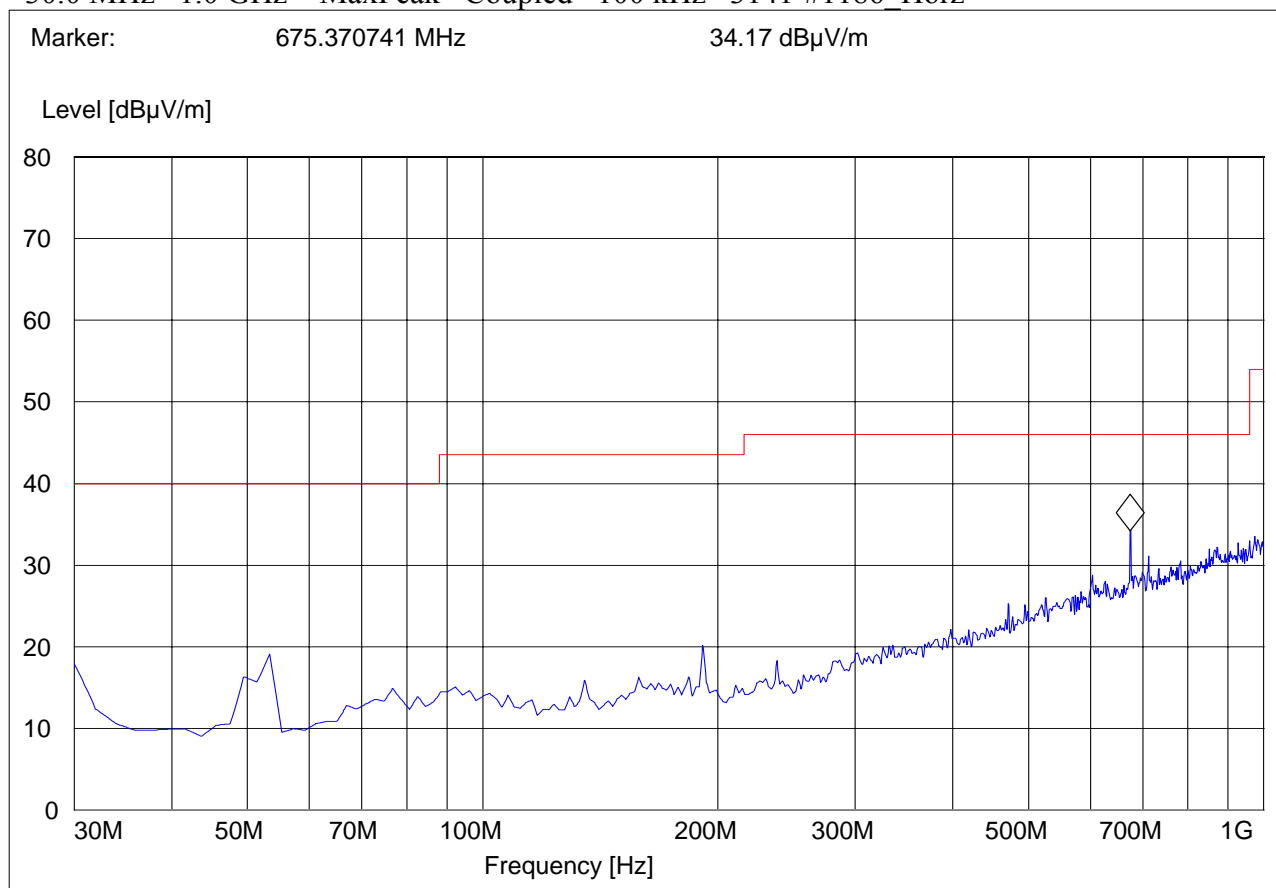


### 30MHz to 1GHz Horizontal

EUT: W62CA  
Customer:: CASIO HITACHI  
Test Mode: RFID  
ANT Orientation: H  
EUT Orientation: V  
Test Engineer: MARC  
Voltage: AC ADAPTER AND BATTERY  
Comments:

### *SWEEP TABLE: "FCC15.247\_30M-1G\_Hor"*

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	MaxPeak	Coupled	100 kHz	3141-#1186 Horz





**5.2 FREQUENCY TOLERANCE § 15.225**

**5.2.1 LIMITS**

The frequency tolerance of the carrier signal shall be maintained within  $\pm 0.01\%$  of the operating frequency over a temperature variation of  $-20$  degrees to  $+50$  degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

**5.2.2 RESULTS**

Voltage (V)	Freq (MHz)	Error (%)
Low vol.: 3.4V	13.56035872	0.0026%
High vol.: 4.2V	13.56035872	0.0026%

**§2.1055 (A)(1)**

**AFC FREQ ERROR vs. TEMPERATURE**

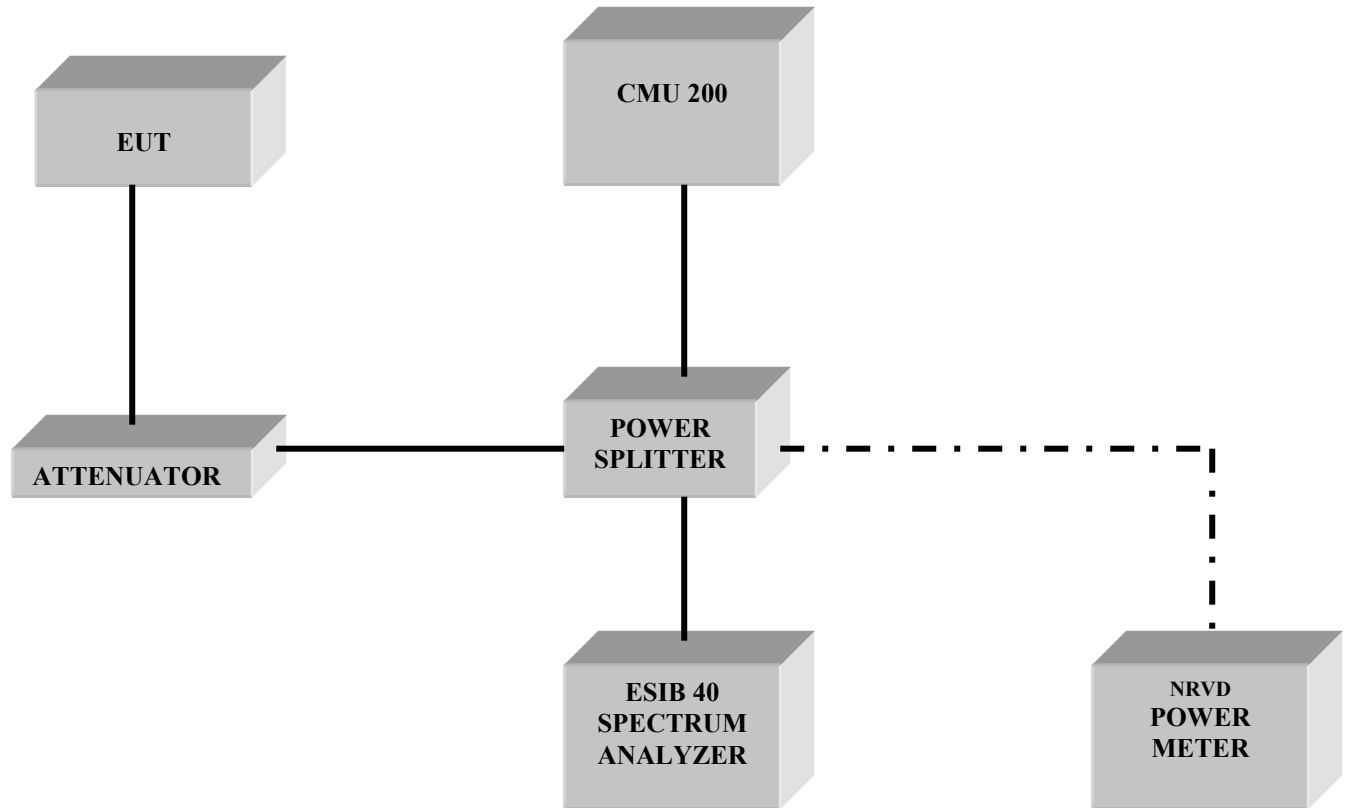
Temperature (°C)	Freq (MHz)	Error (%)
-20	13.56028357	0.0021%
-10	13.56031363	0.0023%
0	13.56032860	0.0024%
+10	13.56035872	0.0026%
+20	13.56035872	0.0026%
+30	13.56032866	0.0024%
+35	13.56031363	0.0023%
+50	13.56029359	0.0022%

## 6 TEST EQUIPMENT AND ANCILLARIES USED FOR TESTS

No	Instrument/Ancillary	Type	Manufacturer	Serial No.	Cal Due	Interval
01	Spectrum Analyzer	ESIB 40	Rohde & Schwarz	100107	May 2009	1 year
02	Spectrum Analyzer	FSEM 30	Rohde & Schwarz	100017	May 2009	1 year
03	Signal Generator	SMY02	Rohde & Schwarz	836878/011	May 2009	1 year
04	Power-Meter	NRVD	Rohde & Schwarz	0857.8008.02	May 2009	1 year
05	Biconilog Antenna	3141	EMCO	0005-1186	June 2009	1 year
06	Horn Antenna (1-18GHz)	SAS-200/571	AH Systems	325	June 2009	1 year
07	Horn Antenna (18-26.5GHz)	3160-09	EMCO	1240	June 2009	1 year
08	Power Splitter	11667B	Hewlett Packard	645348	n/a	n/a
09	Climatic Chamber	VT4004	Voltsch	G1115	May 2009	1 year
10	High Pass Filter	5HC2700	Trilithic Inc.	9926013	n/a	n/a
11	High Pass Filter	4HC1600	Trilithic Inc.	9922307	n/a	n/a
12	Pre-Amplifier	JS4-00102600	Miteq	00616	May 2009	1 year
13	Power Sensor	URV5-Z2	Rohde & Schwarz	DE30807	May 2009	1 year
14	Digital Radio Comm. Tester	CMD-55	Rohde & Schwarz	847958/008	May 2009	1 year
15	Universal Radio Comm. Tester	CMU 200	Rohde & Schwarz	832221/06	May 2009	1 year
16	LISN	ESH3-Z5	Rohde & Schwarz	836679/003	May 2009	1 year
17	Loop Antenna	6512	EMCO	00049838	July 2010	2 years

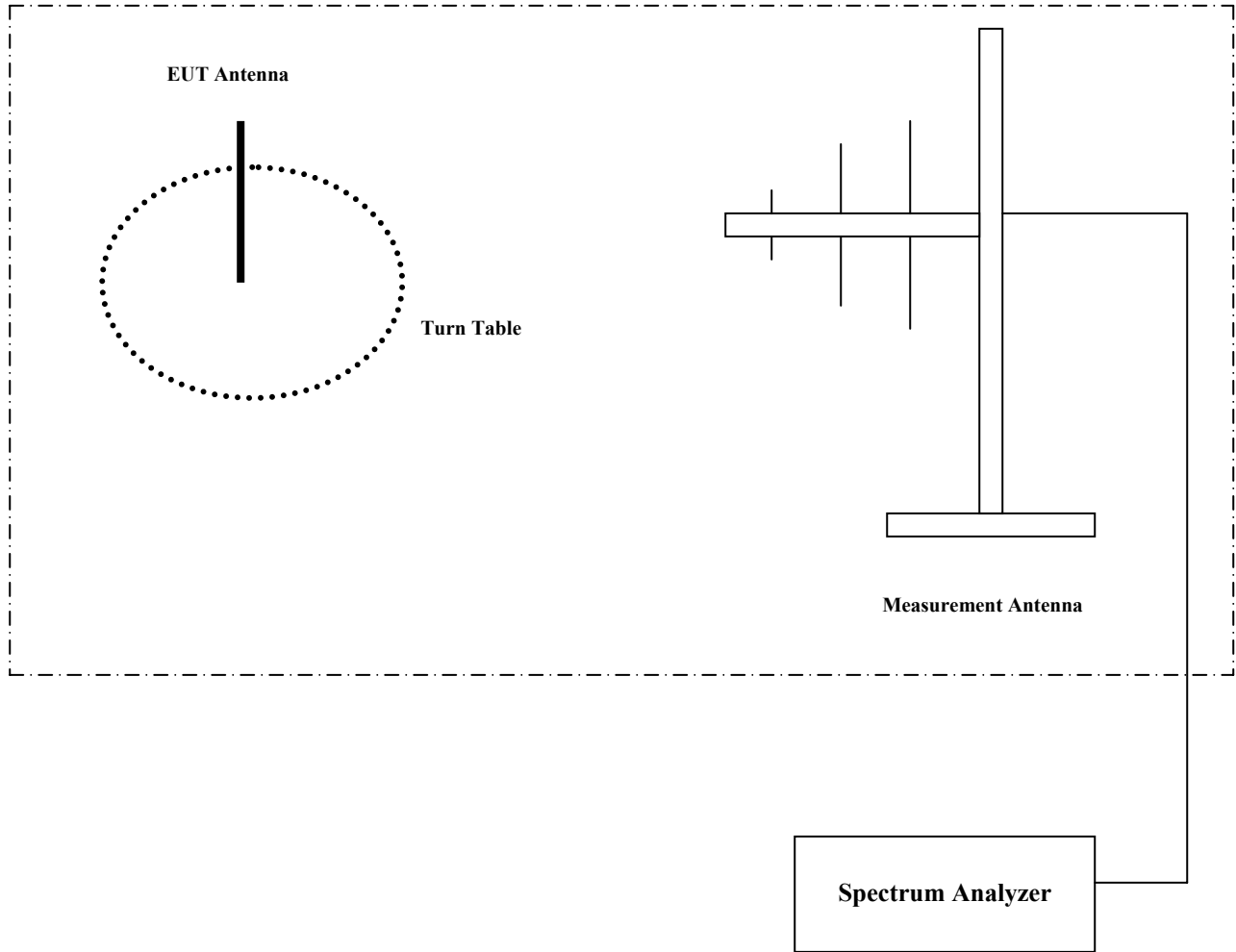
**7 BLOCK DIAGRAMS**

**Conducted Testing**



**Radiated Testing**

**ANECHOIC CHAMBER**







## **8 REPORT HISTORY**

2008-8-20 Original Report

2008-8-21 Corrected applicant's company name. Added accessories. Corrected serial numbers.  
Updated date of testing. Updated report number and date.

2008-8-22 Added measurement distance statement to section 4. Updated report number and date.