Product Integrity Laboratory

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Emissions Test Report
Project Code CG-530
(Report CG-530-RA-1-0)

FCC Part 24/RSS 133 Report for

NORTEL AC 1900MHz VILLAGE BTS 3011 with DOM
FCC ID # AB6NT3011VBTS
IC# 332D-3011VBTS

Revision: 0

May 28, 2007

Prepared for:	Nortel
Author:	Deniz Demirci EMC Specialist
Approved by:	Nick Kobrosly Director of Operations

Report Summary

Test Facility:	**National Technical Systems, Canada** Product Integrity Laboratory 5151-47th Street, N.E. Calgary Alberta T3J 3R2
Accreditation Numbers:	FCC 101386 IC 46405-3978 - File # IC3978-2 **Accredited by Standards Council of Canada** Accredited Laboratory No. 440(Conforms with requirements of CAN−P−4D (ISO/IEC 17025)) CLIENTS SERVED: All interested parties FIELDS OF TESTING: Electrical/Electronic, Mechanical/Physical ISSUED ON: 2005−06−02 VALID TO: 2009−03−20
Performed For:	Nortel Wireless 5050-40th Street, N.E. Calgary Alberta T3J 4P8
Customer Representative:	Name: Tam Dang Phone #: (403)769-4115 Email Address: tamdang@nortel.com
Responsible Manager:	Name: Brad Carlson Phone #: (403) 769-4063 Email Address: bradcarlson@nortel.com

Test Summary

Appendix	Test/Requirement Description	Deviations* from:			Status	Applicable Rule Parts
		Base Standard	Test Basis	NTS Procedure		
A	RF Power Output	No	No	No	PASS	FCC -24.232
B	Occupied Bandwidth	No	No	No	PASS	FCC -24.238
C	TX Conducted Spurious Emissions	No	No	No	PASS	FCC -24.238
D	TX Frequency Stability	No	No	No	PASS	FCC -24.235
E	TX Radiated Spurious Emissions 30 MHz- 20 GHz	No	No	No	PASS	FCC -24.238
F	Conducted Voltage Emissions 150 kHz – 30 MHz FCC CFR 47 Part 24	No	No	No	PASS	FCC Part 15, Subpart B
G	Test Equipment List	No	No	No	NA	NA

Test Result: The product presented for testing complied with test requirements as shown above.

Test Log

APPENDIX	Test Case	Start	End	Tester
A	RF Power Output FCC CFR 47 Part 24	May 20, 2007	May 29, 2007	Deniz Demirci- EMC Specialist Glen Moore – EMC Manager Andrew Gibson – RF Engineer
B	Occupied BW FCC CFR 47 Part 24	May 20, 2007	May 29, 2007	Deniz Demirci- EMC Specialist Glen Moore – EMC Manager Andrew Gibson – RF Engineer
C	TX Conducted Spurious Emissions FCC CFR 47 Part 24	May 20, 2007	May 29, 2007	Deniz Demirci- EMC Specialist Glen Moore – EMC Manager Andrew Gibson – RF Engineer
D	Frequency Stability FCC CFR 47 Part 24	May 1, 2007	May 29, 2007	Deniz Demirci- EMC Specialist Glen Moore – EMC Manager Andrew Gibson – RF Engineer
E	Radiated Emissions 30 MHz – 20 GHz FCC CFR 47 Part 24	May 09, 2007	May 09, 2007	Deniz Demirci – EMC Specialist
F	Conducted Voltage Emissions 150 kHz – 30 MHz FCC CFR 47 Part 24	May 15, 2007	May 15, 2007	Glen Moore – EMC Manager

The test outlined may not be inclusive of all testing required by the Base Standards or fulfill the applicable regulatory requirements in their entirety.

Test Result: The product presented for testing complied with test requirements as shown above.

Prepared By: _____
Glen Moore, EMC Manager
Deniz Demirci, EMC Specialist

Reviewed By: _____
Glen Moore
EMC Manager

Table of Contents

Register of Revisions

Revision	Date	Description of Revisions
0	May 28, 2007	Draft release for Review
1		

1.0 INTRODUCTION

1.1 PURPOSE

This test report is submitted in accordance with the FCC Rules and Regulations, Part 2, Subpart J, Sections 2.1046 through 2.1057 for equipment authorization of Northern Telecom's (Nortel Networks) CDMA BTS3030 1900 MHz.

The BTS3011 1900 MHz is intended for use in the Domestic Public Cellular Radio Telecommunications Service and is designed in accordance with the following standards:

- CFR 47, Part 24, Subpart E, Broadband Personal Communications Service [1]
- CFR 47, Part 2, Subpart J, Equipment Authorization Procedures - Equipment Authorization[2]

The client directed the operation and configuration of the system under test and was responsible for its monitoring and proper operation during the testing,

1.2 ABBREVIATIONS AND DEFINITIONS

The following are the abbreviations and definitions that may be relevant to this document.

Abbreviation	Explanation
A	Amps
AC	Alternating Current
AE	Ancillary Equipment
AF	Antenna Factor
ANSI	American National Standards Institute
AWG	American Wire Gauge
BTS	Base Transceiver Station
C	Celsius
CAM	Customer Alarm Module
CDMA	Code Division Multiple Access
CEM	Channel Element Module
CF	Correction Factor
CFR	Code of Federal Regulations
CH	Channel
CISPR	Comite International Special des Perturbations Radioelectriques (The International Special Committee on Radio Interference)
CL	Cable Loss
cm	centimetre
CM	Control Module
dB	Decibel
dBm	Decibel relative to 1 milliwatt
dBµV	Decibel relative to 1 uV
DC	Direct Current

DM	Digital Module
EMC	Electromagnetic Compatibility
EMI	Electromagnetic Interference
EN	European Norms
EUT	Equipment UnderTest
FCC	Federal Communications Commission
FRU	Flexible Radio Unit
GHz	Gigahertz
GPS	Global Positioning System
GPSTM	Global Positioning System Timing Module
GR	Generic Requirements
Hpol	Horizontal Polarization
HSSL	High Speed Serial Link
Hz	Hertz
IC	Industry Canada
kHz	kilohertz
LO	Local Oscillator
LNA	Low Noise Amplifier
m	Metre
MHz	Megahertz
ms	Milli Second
NTS	National Technical Systems
NA	Not Available
N/A	Not Applicable
PA	Power Amplifier
PI	Product Integrity
PK	Peak
PLL	Phase Lock Loop
P/N	Part Number
PS	Power Supply
PSU	Power Supply Unit
QP	Quasi-Peak
Qty	Quantity
RE	Radiated Emissions
RF	Radio Frequency
RM	Radio Module
Rx	Receive
TDMA	Time Division Multiple Access
TT	Turn Table
Tx	Transmit
V	Volts
VDC	Volts Direct Current
Vpol	Vertical Polarization
W	Watt
XCEM	X Channel Element Module
Zt	Transfer Impedance

Definitions:

Equipment Under Test (EUT): A representative ITE or functionally interactive group of ITE (that is a system), which includes one or more host units and is used for evaluation purposes.

Electromagnetic compatibility (EMC): The ability of an equipment or system to function satisfactorily in its electromagnetic environment without introducing intolerable electromagnetic disturbances to anything in that environment.

1.3 REFERENCES

US Code of Federal Regulations

- 47 CFR Part 24 Federal Communications Commission, Part 24

American National Standards Institute

- ANSI C63.4-2003 American National Standards for Methods of Measurements of Radio-Noise Emissions from Low Voltage Electrical and Electronic Equipments in the range of 9 kHz to 40 GHz, December 11, 2003

NTS Documentation

- NTS Radiated Emissions 30 MHz – 1 GHz Automated Test Method E001R7
- NTS Radiated Emissions 1 GHz – 40 GHz Manual Test Method E006R4

2.0 EUT

CONFIGURATION

Description of EUT

	Name	Model	Revision	Serial Number
EUT	BTS3011 1900MHz CDMA Base Station 3C1S with DOM-A	BTS3011	Beta 2	NNTM536G4RG6
Classification	B			
Size (m)	30.5" x 13.1" x 8.5" (H x W x D) form factor for total BTS3011 block (1.97 cu. ft.)			
Weight	Approx. 100 lbs			
Power	208VAC, 120VAC, -48VDC			
General Functional Description	The BTS3011 is a high efficiency, light weight and low form factor CDMA Base-station solution for coverage holes in 1900MHz markets. The architecture and design are based on the Village BTS where the cost and size is optimized for 1-3 carrier single sector wall, floor and pole mount indoor/outdoor deployment. The 3011 BTS supports a total of 128 channel elements, 1xRTT air interface, 5W of Tx power per carrier, -127.5 dBm Rx sensitivity typical, -124.5 dBm Rx sensitivity guaranteed, 4 customer alarms, and AC/DC power. The 3011 BTS supports one DO Unit.			

SET UP CONFIGURATION

EUT

Quantity	EUT Description	P/N	S/N	Rev
1	BTS3011 1900MHz CDMA Base Station 3C1S with DOM-A	NTDV70ABE5	NNTM536G4RG6	N2

EUT POWER

Voltage	208 VAC, 120 VAC, -48 VDC
Number of Feeds	1
Gauge of cable	10
Current Draw	3.9A for 200 - 240 VAC; 5.6A for 100-120 VAC; 7.6A for -48 VDC
Current into final Amplifier elements	PA final stage transistor draws will be a total of ~3.0A. This can be broken down as follows… Main Amp Idq= 2.75A Aux Amp Idq= 0.25A This is at 20W output, 3 carrier operation.

CABLES

EUT Cable List

Qty	Model	Routing		Description	Cable Length (m)
		From	To		
1	n/a	UUT	Termination Load	RF Cable for Ant. Port	15
1	n/a	UUT	Termination Load	RF Cable for Rx Port	15
1	n/a	UUT	Termination Load	RF Cable for GPS Port	15
1	n/a	UUT	Termination Load	T1/E1 Cable	15
1	n/a	UUT	Power Supply	AC/DC Power Cables	15

FREQUENCIES

EUT Frequency List

Module	Signal	Frequency (MHz)
BTS3011	Transmit	1930-1990
BTS3011	Receive	1850-1910

APPENDICES

APPENDIX A: POWER OUTPUT

A.1. Base Standard & Test Basis

Base Standard	FCC Part 24.232
Test Basis	FCC 2.1046
Test Method	TIA/EIA 603

A.2. Specifications

FCC Part 2.1046

(a) For transmitters other than single sideband, independent sideband and controlled carrier radiotelephone, power output shall be measured at the RF output terminals when the transmitter is adjusted in accordance with the tune -up procedure to give the values of current and voltage on the circuit elements specified in 2.983(d)(5). The electrical characteristics of the radio frequency load attached to the output terminals when this test is made shall be stated.

A.3. FCC Limit (Part 24.232)

The maximum RF power from a base station must not exceed 100 Watts.

A.4. Measurement Uncertainty

Expanded Uncertainty (K=2)
1.11/-1.22

A.5. Deviations

Deviation Number	Time & Date	Description and Justification of Deviation	Deviation Reference			Approval
			Base Standard	Test Basis	NTS Procedure	
none						

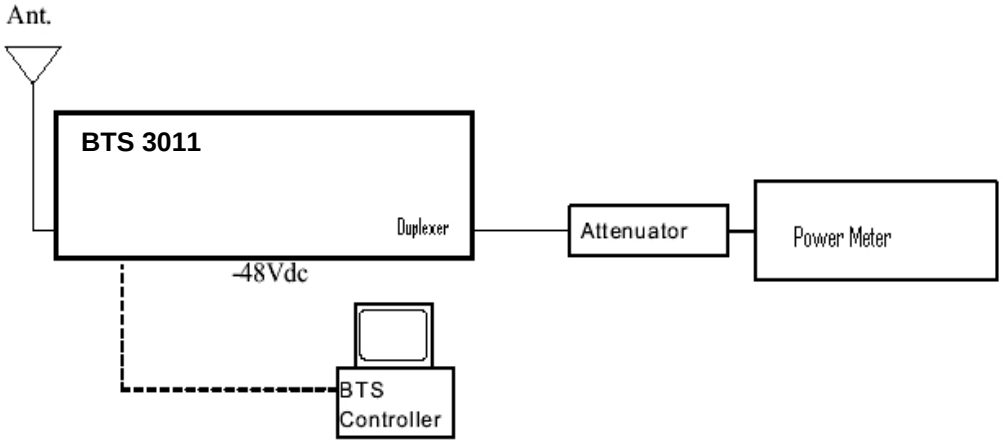
A.6. Test Method

The DE was setup via the BTS controller to enable to transmit at maximum power. Measurements were made in one, two, and three carrier configurations. The RF output power was measured using the power meter.

A.7. Test Setup

The set-up used for the RF output power test is illustrated below. RF output power measurements were referenced to the main antenna port of the duplexer.

Figure 1: Power Output test setup



A.8. Test Results

Table 1: RF Power Output of BTS3011 1900 MHz, 1 Carrier Mode

Channel Number (Band)	Modulation	Frequency (MHz)	Measured RF Output Power (dBM)	Typical Maximum Rated Power (dBm)	FCC Limit (dbm)
25 (A)	IS97	1931.25	41.9		50
25 (A)	16 QAM	1931.25	41.4		50
375 (D)	16 QAM	1948.75	41.4		50
325 (D)	8PSK	1946.25	41.4		50
425 (B)	16 QAM	1951.25	40.9		50
775 (E)	16 QAM	1968.75	41.0		50
1175 (C)	IS97	1988.75	41.9		50
925 (C)	8PSK	1976.25	41.6		50
825	16 QAM	1971.25	41.5		50
825	IS97	1971.25	42.1		50
875	16 QAM	1973.75	41.1		50

Table 2: RF Power Output of BTS 3011 1900 MHz, 2 Carrier Mode

Channel Numbers (Band)	Modulation	Frequency (MHz)	Measured RF Output Power (dBM)	Typical Maximum Rated Power (dBm)	FCC Limit (dbm)
25, 50 (A)	IS97, 8PSK		41.7		50
425, 450 (B)	IS97, 8PSK		41.5		50
775.750 (E)	IS97, 8PSK		41.5		50
1175, 1150 (C)	IS97, 8PSK		41.9		50
850, 875 (F)	IS97, 8PSK		41.7		50
350, 375 (D)	IS97, IS97		41.8		50

Table 3: RF Power Output of BTS3011 1900 MHz, 3 Carrier Mode

Channel Numbers (Band)	Modulation	Frequency (MHz)	Measured RF Output Power (dBM)	Typical Maximum Rated Power (dBm)	FCC Limit (dbm)
25, 50, 75 (A)	IS97, 2 QAM	1931.25/1932.5/1933.75	41.9		50
325, 350, 375 (D)	3xIS97	1946.25/1947.5/1948.75	41.9		50
425, 450, 475 (B)	1 IS97, 2 QAM	1951.25/1952.5/1953.75	41.6		50
725, 750, 775 (E)	1 IS97, 2 QAM	1966.25/1967.50/1968.75	41.5		50
1125, 1150, 1175 (C)	1 IS97, 2 QAM	1986.25/1987.5/1988.75	42.2		50
825, 850, 875 (F)	1 IS97, 2 QAM	1971.25/1972.5/1973.75	41.8		50

A.9. Tested By

This testing was conducted in accordance with the ISO 17025:1999 scope of accreditation, table 1; Quality Manual.

Name: Deniz Demerci, EMC Specialist
Glen Moore, EMC Manager
Andrew Gibson, RF Engineer

APPENDIX B: OCCUPIED BANDWIDTH

B.1. Base Standard & Test Basis

Base Standard	FCC Part 24.238
Test Basis	FCC PART 2.1049
Test Method	FCC PART 2.1049/24.238

B.2. Specifications

FCC Part 2.1049

The OBW, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured under the following conditions as applicable:

(g) Transmitter in which the modulating baseband comprises not more than three independent channels - when modulated by the full complement of signals for which the transmitter is rated. The level of modulation for each channel should be set to that prescribed in rule parts applicable to the services for which the transmitter is intended. If specific modulation levels are not set forth in the rules, the tests should provide the manufacturer's maximum rated condition.

(h) Transmitters employing digital modulation techniques - when modulated by an input signal such that its amplitude and symbol rate represent the maximum rated conditions under which the equipment will be operated. The signal shall be applied through any filter networks, pseudo-random generators or other devices required in normal service. Additionally, the occupied bandwidth shall be shown for operation with any devices used for modifying the spectrum when such devices are optional at discretion of the user.

B.3. Measurement Uncertainty

Expanded Uncertainty (K=2)
1.11/-1.22

B.4. Deviations

Deviation Number	Time & Date	Description and Justification of Deviation	Deviation Reference			Approval
			Base Standard	Test Basis	NTS Procedure	
none						

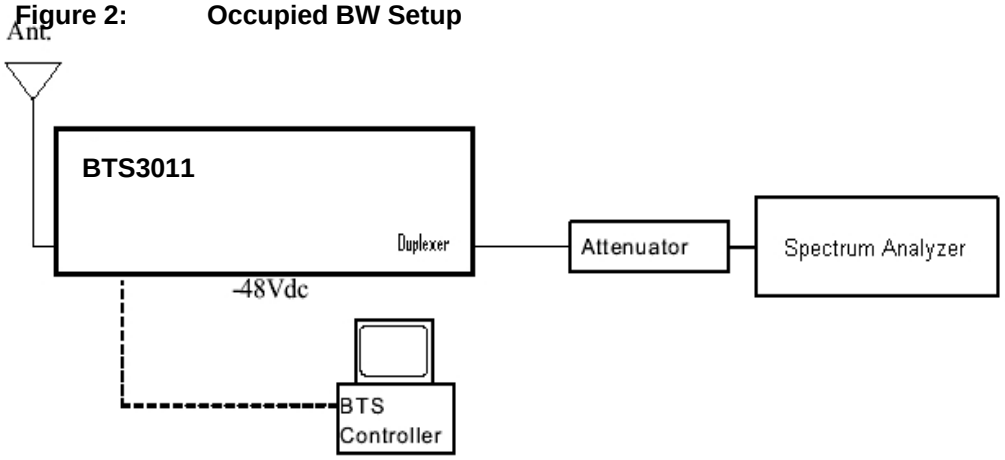
B.5. Test Method

The DE was setup via the BTS controller to enable the BTS3030 to transmit at maximum power. The occupied bandwidth was measured using the 99% channel power feature of the spectrum analyzer.

B.6. Test Setup

The test setup for Occupied BW is as illustrated below

Figure 2: Occupied BW Setup



B.7. Test Results

Table 4: Occupied BW, BTS3011 1900 MHz, Single Carrier Mode

Channel Number (Band)	Modulation	Frequency (MHz)	Measured Occupied BW (MHz)
25 (A)	16 QAM	1931.25	1.273 MHz
25 (A)	IS97	1931.25	1.273 MHz
425 (B)	16 QAM	1951.25	1.273 MHz
1175(C)	16 QAM	1988.75	1.283 MHz
375 (D)	IS97	1948.75	1.273 MHz
775 (E)	16 QAM	1968.75	1.275 MHz
825 (F)	IS97	1971.25	1.273 MHz

Table 5: Occupied BW, BTS3011 1900 MHz,Two Carrier Mode

Channel Number (Band)	Modulation	Frequency (MHz)	Measured Occupied BW (MHz)
25, 50 (A)	8PSK/IS97	1931.25/1932.5	2.485 MHz
425, 450 (B)	8PSK/IS97	1951.25/1952.5	2.485 MHz
1150, 1175 (C)	8PSK/IS97	1987.70/1988.75	2.485 MHz
350, 375 (D)	IS97/IS97	1947.5/1948.75	2.505 MHz
750, 775 (E)	8PSK/IS97	1967.5/1968.75	2.485 MHz
850, 875 (F)	8PSK/IS97	1972.5/1973.75	2.485 MHz

Table 6: Occupied BW, BTS3011 1900 MHz, Three Carrier Mode

Channel Number (Band)	Modulation	Frequency (MHz)	Measured Occupied BW (MHz)
25, 50, 75 (A)	IS97X3	1931.25/1932.5/1933.75	3.732
425, 450, 475 (B)	IS97X2, 16 QAM	1951.25/1952.5/1953.75	3.732
1125, 1150, 1175 (C)	IS97X2, 16 QAM	1986.25/1987.5/1988.75	3.732
325, 350, 375(D)	IS97X2, 16 QAM	1946.25/1947.5/1948.75	3.732
725, 750, 775 (E)	IS97X2, 16 QAM	1966.25/1967.50/1968.75	3.732
825, 850, 875(F)	IS97X2, 16 QAM	1971.25/1972.5/1973.75	3.732

Figure 3: Occupied BW Single Carrier Mode

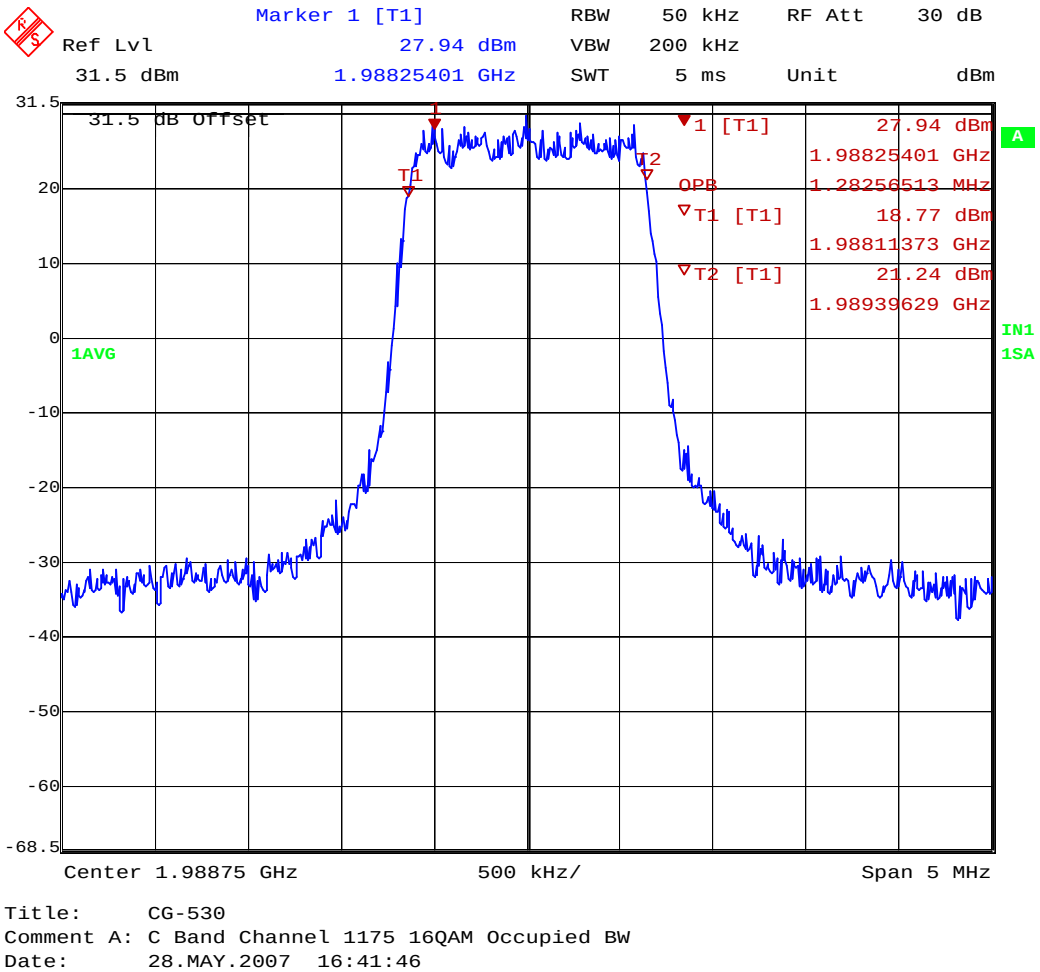
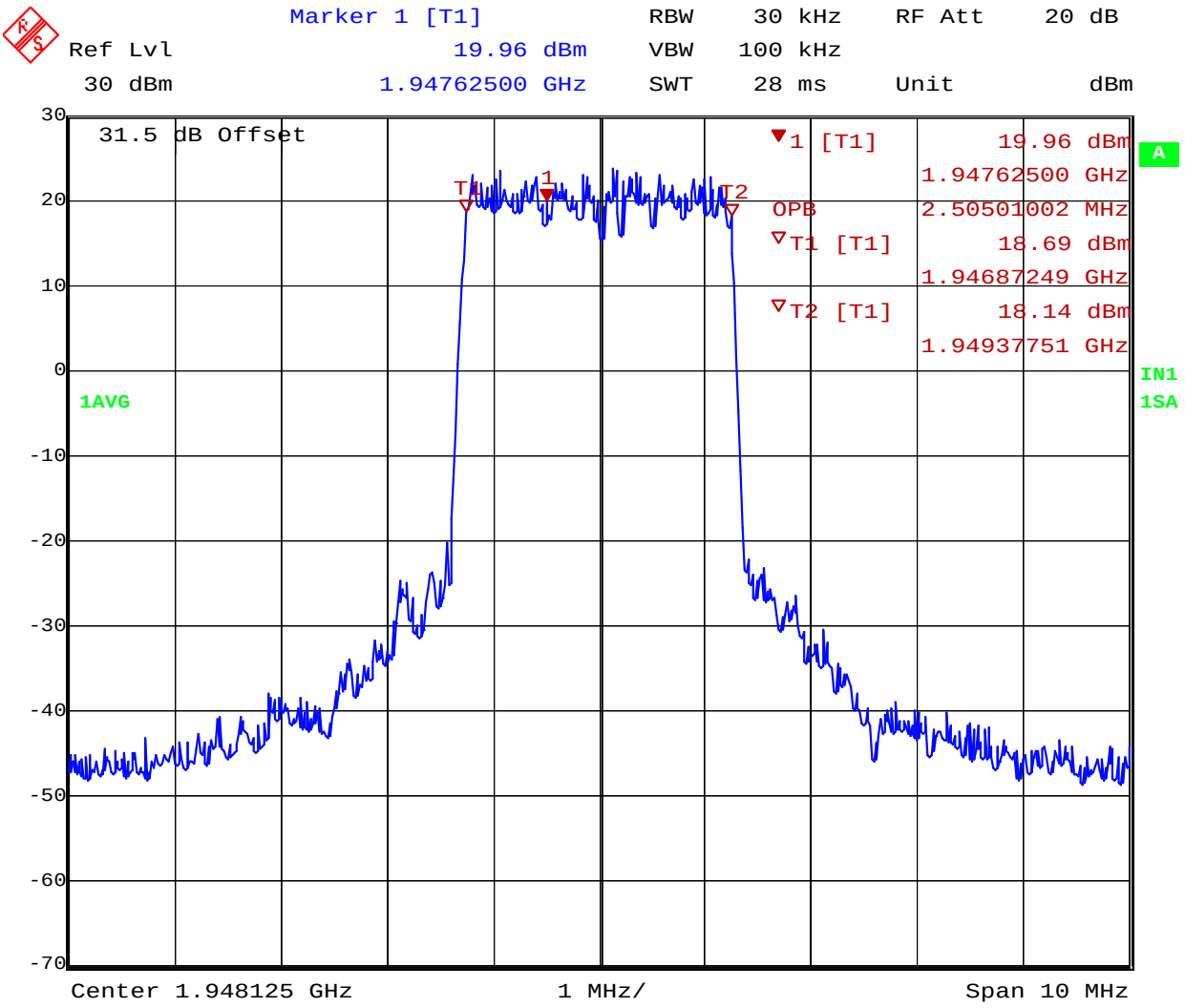
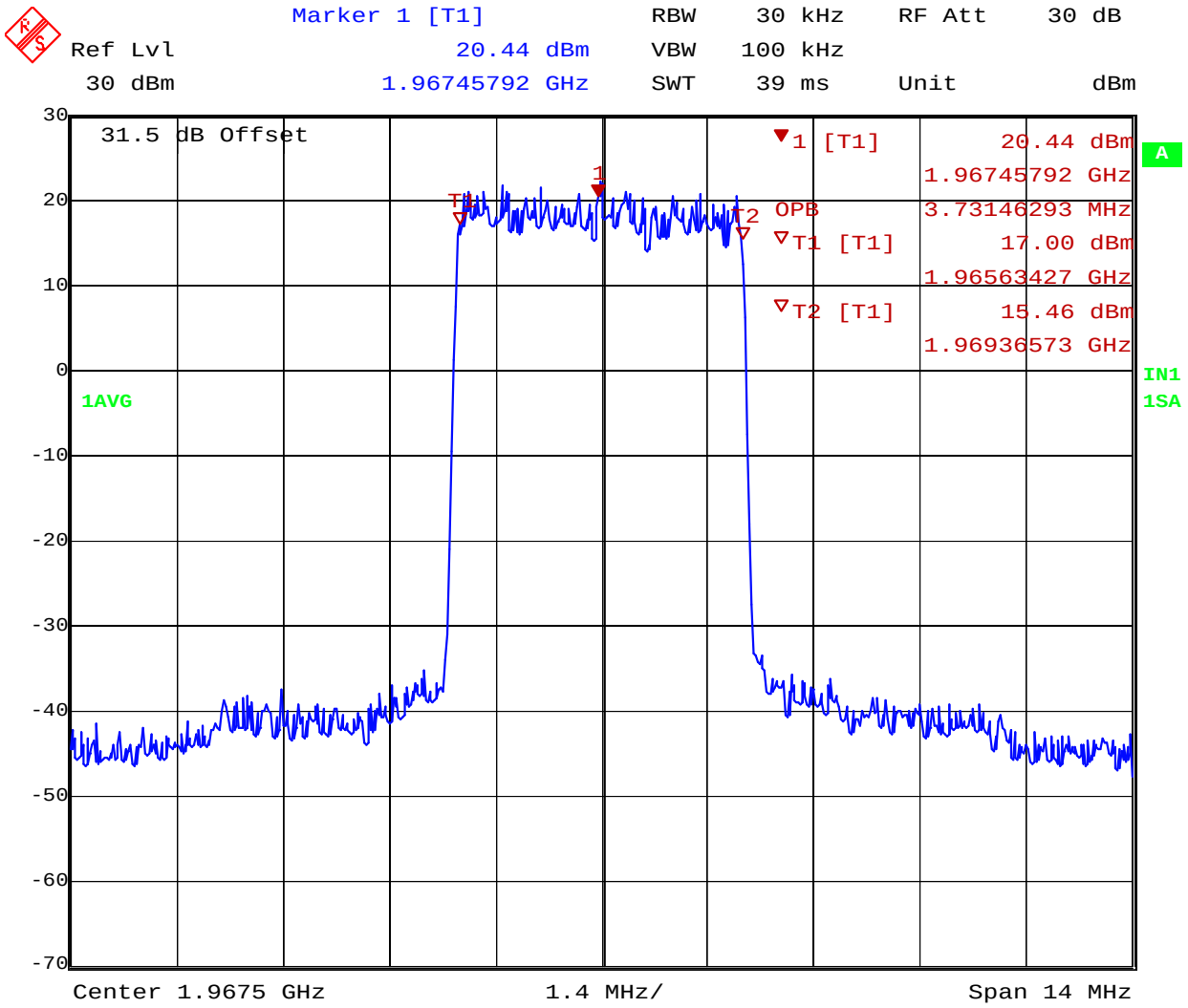


Figure 4: Occupied BW Two Carrier Mode



Title: CG-530
Comment A: D Band Ch 350 375 Occ BW IS97 IS97
Date: 29.MAY.2007 12:15:14

Figure 5: Occupied BW Three Carrier Mode

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Title:     CG-530 VBTS 3011
Comment A: Occupied BW- 3 Carrier Mode E Block
           Channel 725 IS97,750 IS97,775 16QAM
Date:      25.MAY.2007  13:32:33
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APPENDIX C: SPURIOUS EMISSIONS AT ANTENNA TERMINALS

C.1. Base Standard & Test Basis

Base Standard	Cell Mode: FCC Part 22.917 - PCS Mode: FCC Part 24.238
Test Basis	FCC 2.1051
Test Method	FCC 2.1051

C.2. Specifications

FCC Part 2.1051

The radio frequency voltage or powers generated within the equipment and appearing on a spurious frequency shall be checked at the equipment output terminals when properly loaded with a suitable artificial antenna. Curves or equivalent data shall show the magnitude of each harmonic and other spurious emission that can be detected when the equipment is operated under the conditions specified in 2.1049 as appropriate. The magnitude of spurious emissions which are attenuated more than 20 dB below the permissible value need not be specified.

FCC Part 2.1057 - Frequency Spectrum to be investigated

The spectrum should be investigated from the lowest radio frequency generated in the equipment up to at least the 10th harmonic of the carrier frequency or to the highest frequency practicable in the present state of the art of measuring techniques, whichever is lower. Particular attention should be paid to harmonics and subharmonics of the carrier frequency. Radiation at the frequencies of multiplier stages should be checked. The amplitude of spurious emissions which are attenuated more than 20 dB below the permissible value need not be reported.

FCC Part 24.238 Limit

(a) On any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmit power (P) by at least 43 + 10 log (P) dB.

(b) Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

(c) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the licensee's frequency block edges, both upper and lower, as the design permits.

(d) The measurements of emission power can be expressed in peak or average values, provided they are expressed in the same parameters as the transmitter power.

C.3. Measurement Uncertainty

Expanded Uncertainty (K=2)
1.11/-1.22

C.4. Deviations

Deviation Number	Time & Date	Description and Justification of Deviation	Deviation Reference			Approval
			Base Standard	Test Basis	NTS Procedure	
none						

C.5. Test Procedure

The BTS digital enclosure was configured via the BTS controller to enable the BTS3011 to transmit at maximum power. Measurements were made on IS-97 and IS-864 channels at the bottom and top of the licensed sub-bands in one, two and three carrier configurations. The following spectrum analyzer settings were used for the measurement of the antenna port spurious emissions:

Adjacent 1MHz to indicated cellular band (Upper and Lower)

Resolution Bandwidth: 20 kHz (1 carrier), 30kHz (2 carrier), 50kHz (3 carrier)
Video Bandwidth: 50 kHz (1 carrier), 100kHz (2 carrier), 200kHz (3 carrier)
Video Average: 10 Averages
Span: 1 MHz
Attenuation: 30 dB
Ref. Level: 35 dBm
Ref. Level Offset: 31.2 dB

All spectrum analyzer settings were coupled as per the manufacturers recommendations to improve measurement time, without compromising data.

All other Spurious Emissions up to 20 GHz

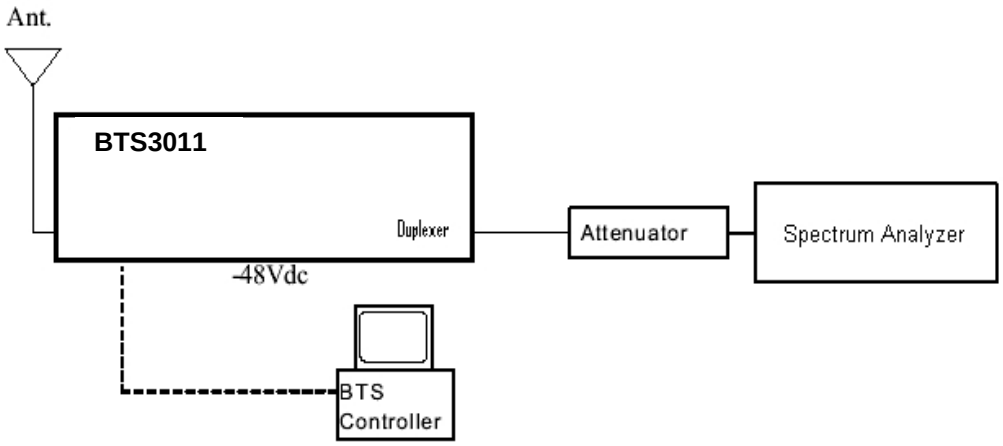
Resolution Bandwidth: 1 MHz (1 carrier, 2 carrier, 3 carrier)
Video Bandwidth: 3 MHz (1 carrier, 2 carrier, 3 carrier)
Video Average: 10 Averages
Span: Set accordingly
Attenuation: 30 dB
Ref. Level: variable
Ref. Level Offset: variable

Calibrated the cables and attenuator losses from 50MHz to 20GHz using a network analyzer with 401 sample points. The calibrated loss is the reference level offset on the spectrum analyzer.

C.6. Test Setup

The test setup for conducted spurious emissions is as shown in the figure below

Figure 6: Conducted Spurious Emission setup



C.7. Test Results

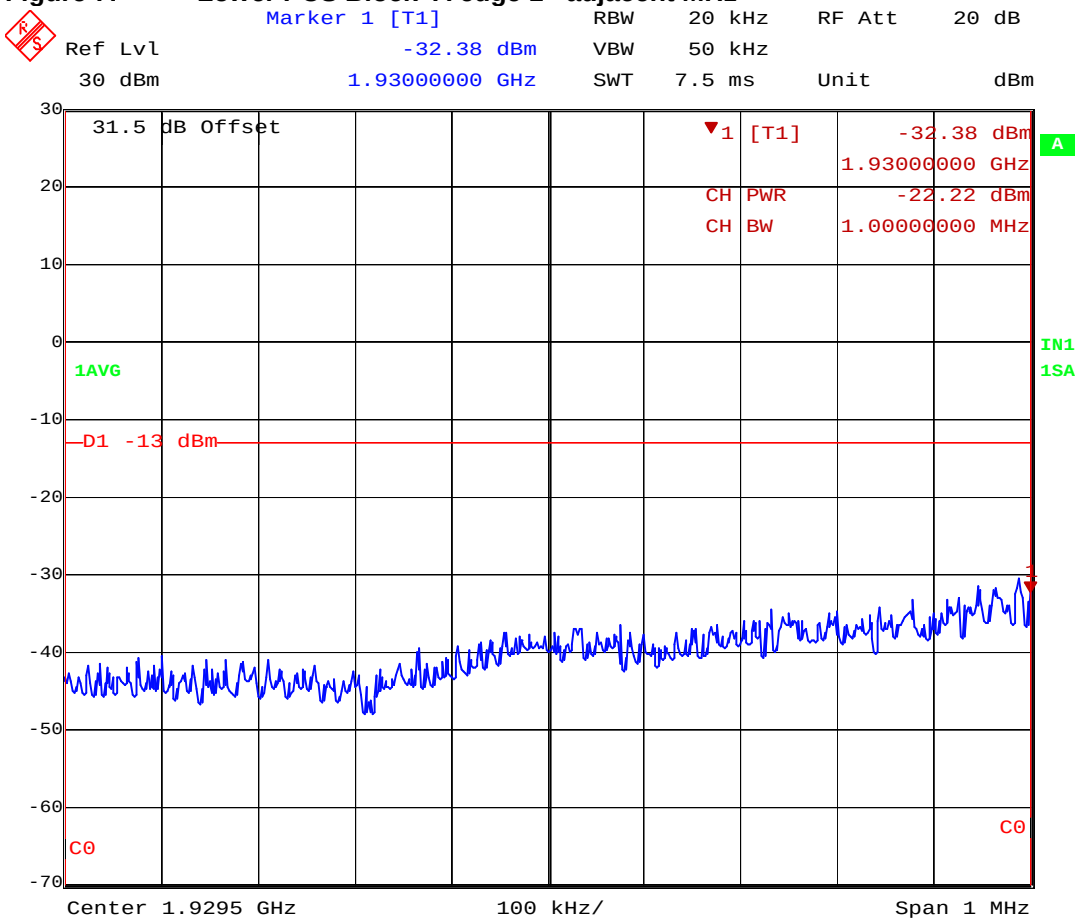
The frequency spectrum from 50 MHz to 20 GHz was scanned for emissions using the spectrum analyzer settings outlined in the test method (Section 4.4.2). The BTS3011 complies with the limit of -13 dBm. The table below shows the spurious emissions at the antenna port of the BTS3011 for 1 , 2 and 3 IS-97 and IS-864 carrier modes. The plots that follow show the spurious emissions in one, two, and three carrier configuration. (For each configuration, only some samples of one, two and three carriers are shown to reduce the number of figures).

Table 7: Spurious Emissions at the BTS3011 1900 MHz antenna port

Frequency (MHz) and Band	Spurious Emissions Level (dBm)			Margin to FCC Limit of -13 dBm (dbm/1MHz)		
	1 carrier (20 KHz RBW)	2 carrier (30 KHz RBW)	3 Carrier (50kHz RBW)	1 Carrier	2 Carrier	3 Carrier
1990-1991 MHz (1st adjacent 1 MHz)	NA	NA	-18.97	NA	NA	6.97
1991-1992MHz (2nd adjacent 1 MHz)	NA	NA	-21.68	NA	NA	8.68
1929-1930 MHz (1st Adjacent 1 MHz)	-23.07	-22.2	-20.28	10.02	9.2	7.28
1928 -1929 MHz (2nd adjacent 1 Mhz	-28.1	-28.0	-25.10	15.1	15	12.1
30 MHz – 2 GHz (no emissions detected – noise floor measurement for all bands)	-29	-29	-29	16	16	16
2 GHz – 5 GHz (no emissions detected – noise floor measurement for all bands)	-34	-34	-34	21	21	21
5GHz -10 GHz (no emissions detected – noise floor measurement for all bands)	-32.2	-32.2	-32.2	19.8	19.8	19.8
10 GHz -15 GHz (no emissions detected – noise floor measurement for all bands)	-31	-31	-31	18	18	18
15 GHz- 20 GHz (no emissions detected – noise floor measurement for all bands)	-30.5	-30.5	-30.5	16.5	16.5	16.5

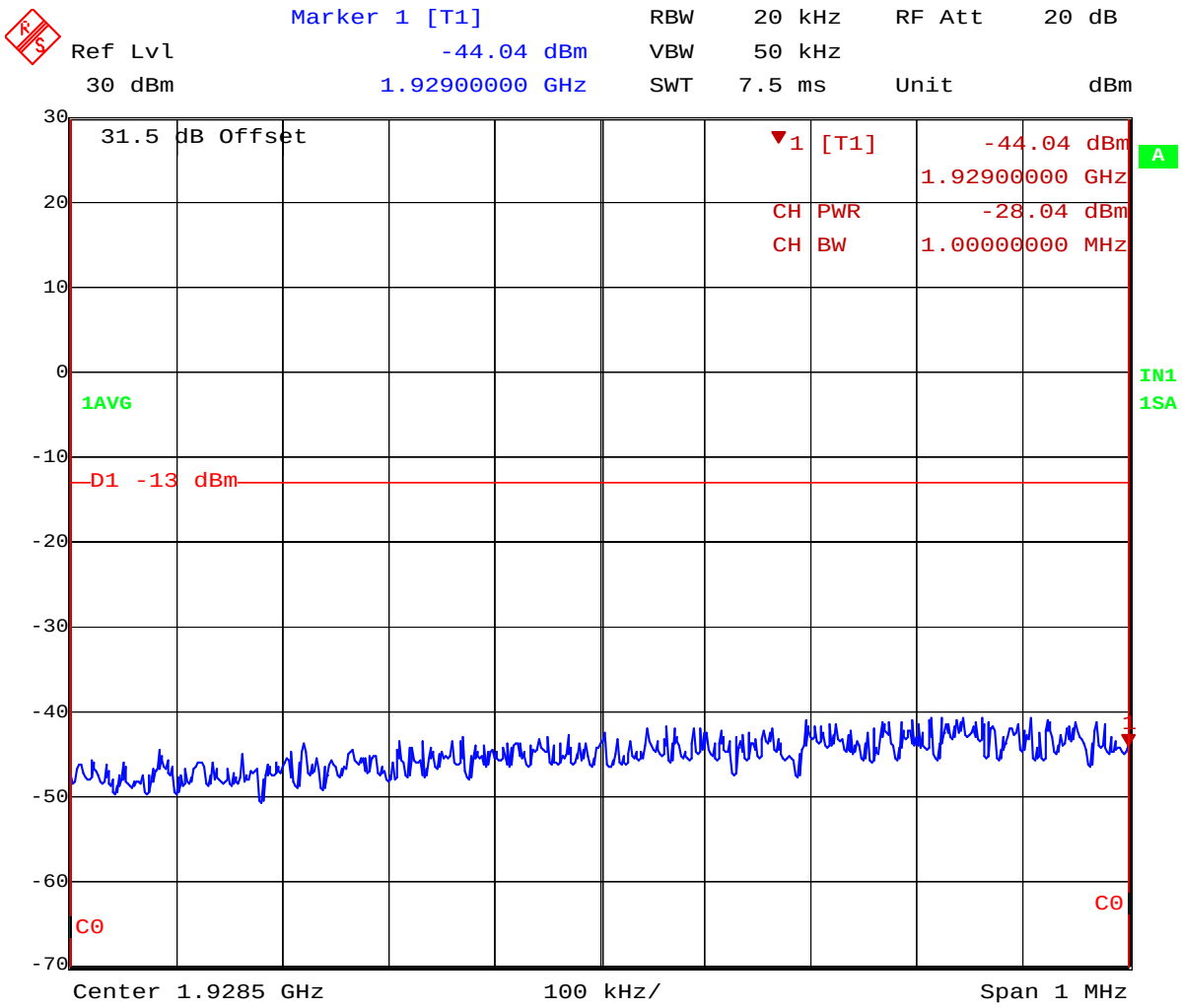
Notes: a Emission levels given in these ranges represents the worst case value over all the tested channels (3 carrier produced worst case band edge results in all measured cases. No emissions were detected beyond band edge measurements, data reported is noise floor of measurement system

Figure 7: Lower PCS Block A edge 1st adjacent MHz



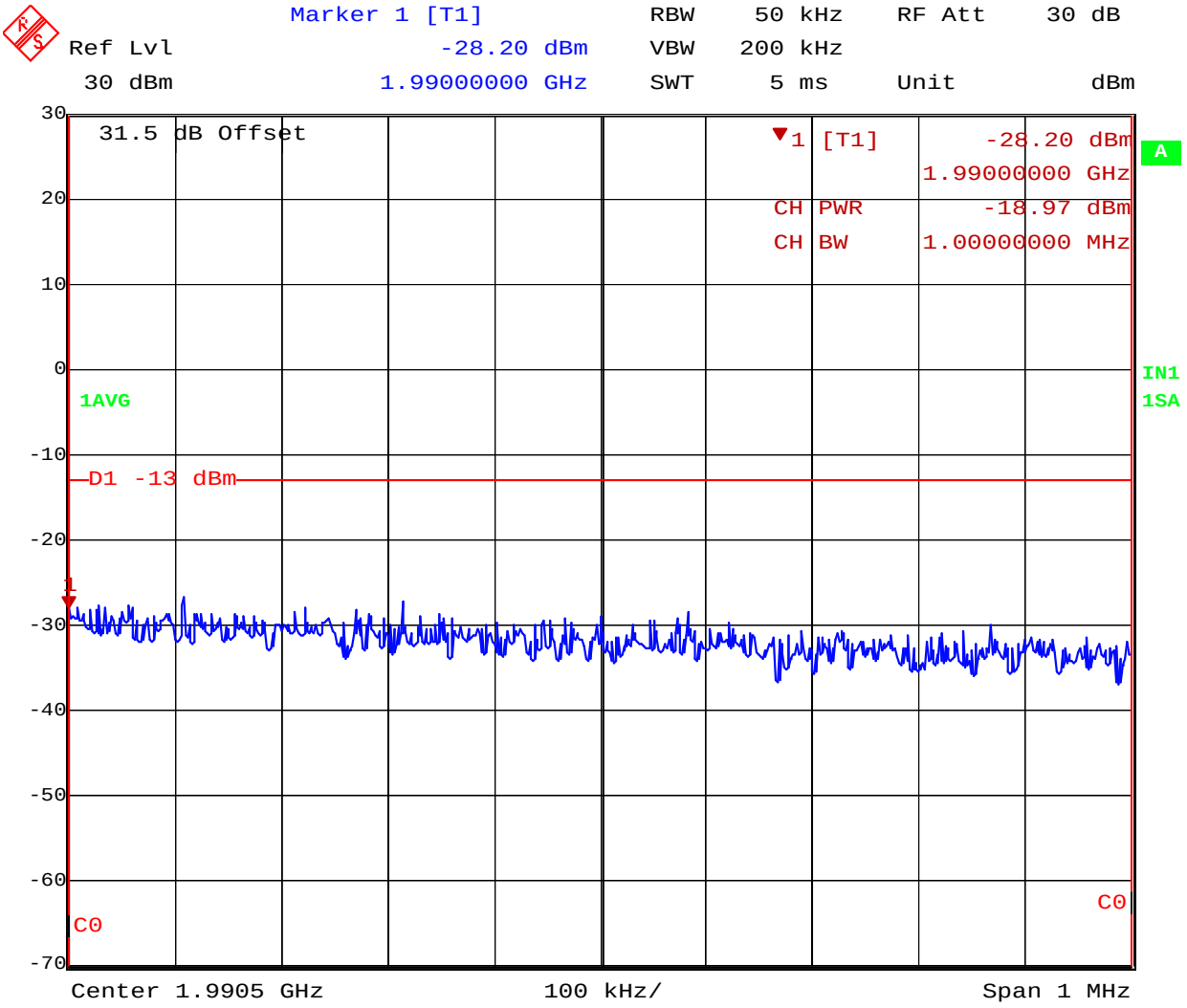
Title: CG-530
Comment A: A Band Ch 25 50 Band Edge Inner IS97 16QAM
Date: 29.MAY.2007 11:39:51

Figure 8: Lower band edge PCS Block A 2nd adjacent MHz



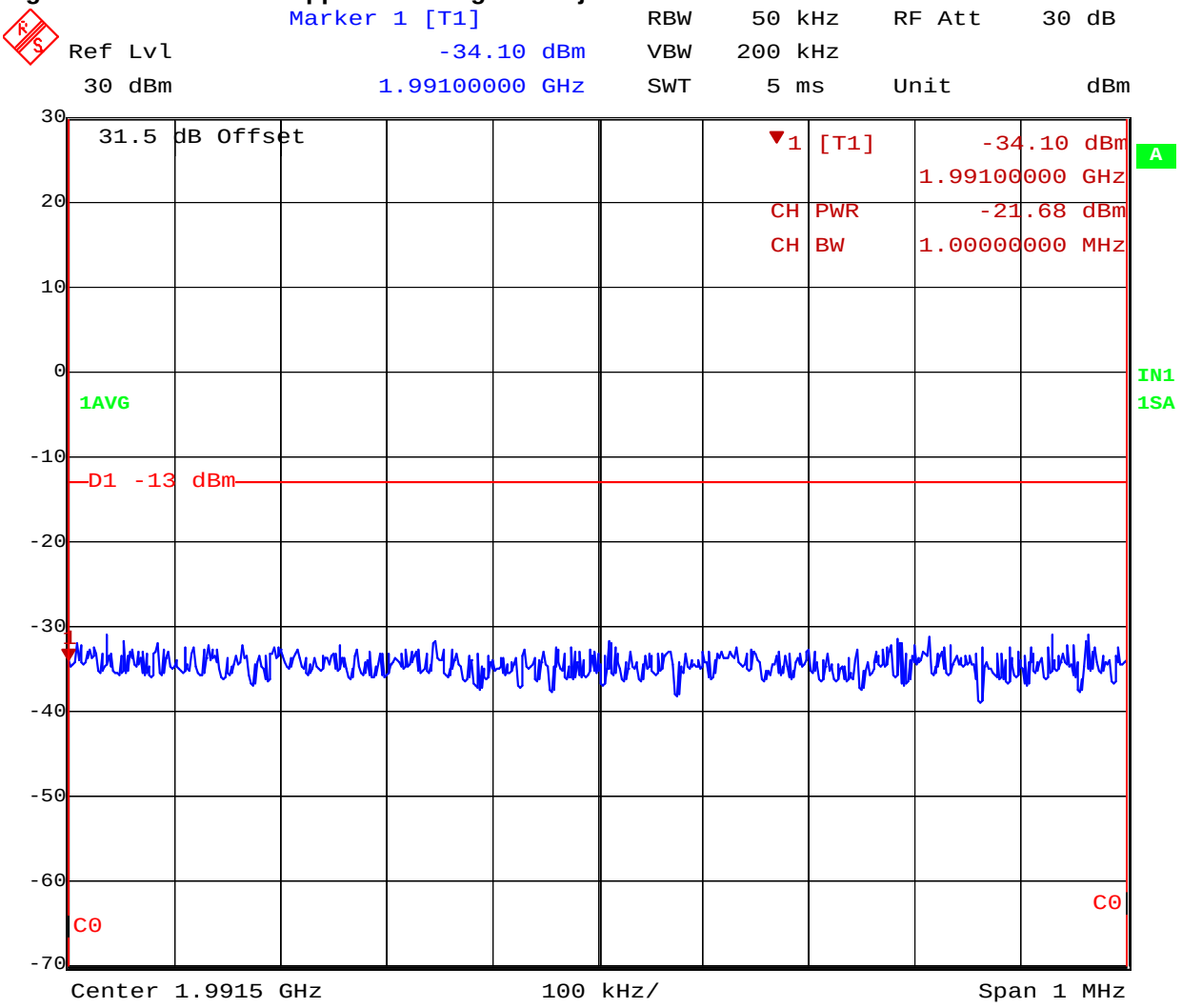
Title: CG-530
Comment A: A Band Ch 25 50 Band Edge Inner IS97 16QAM
Date: 29.MAY.2007 11:41:31

Figure 9: C Block Upper Band Edge 1st adjacent 1 MHz



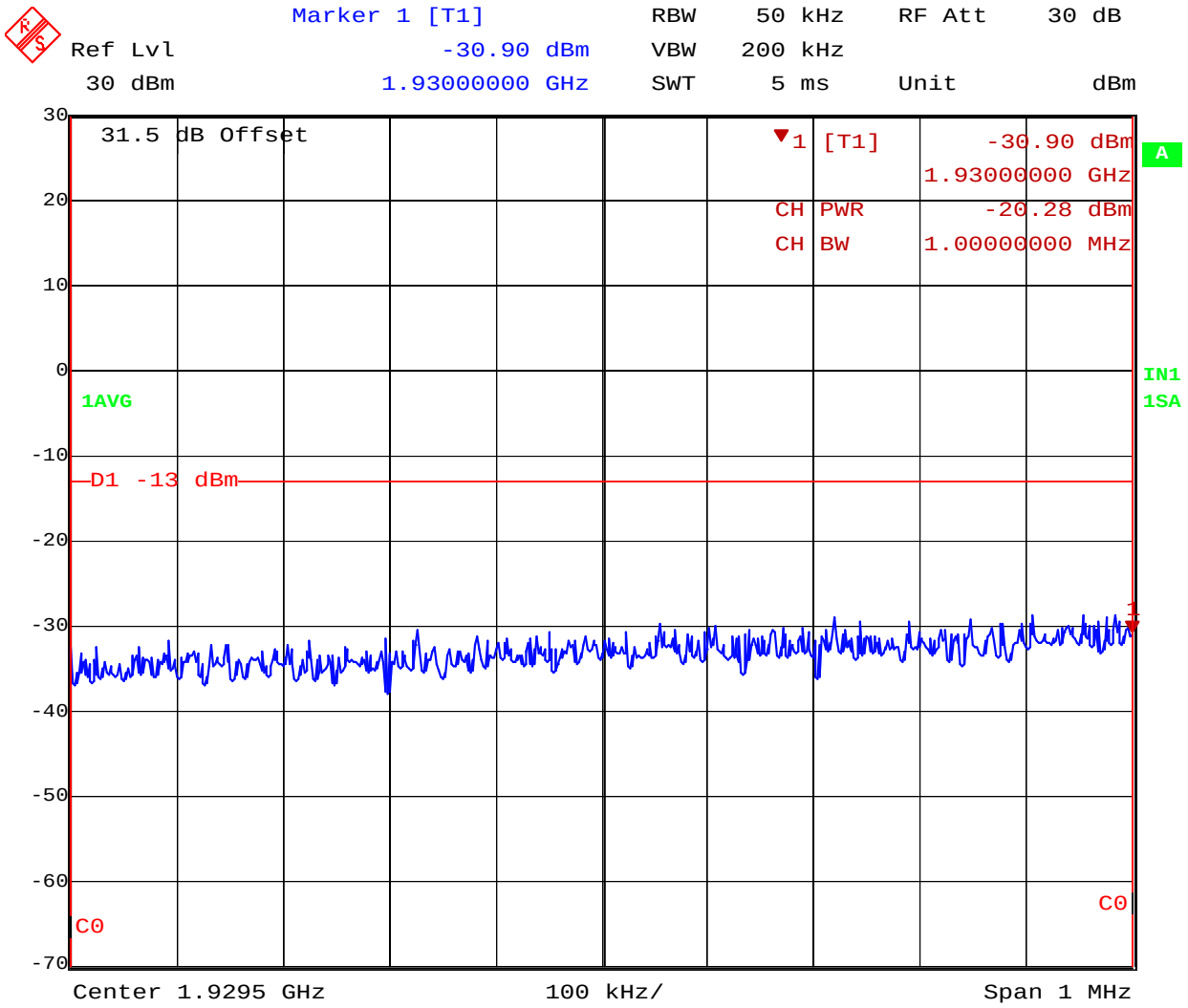
Title: CG-530
Comment A: C Band Ch 1125, 1150 & 1175 Inner Band Edge
Date: 29.MAY.2007 07:21:28

Figure 10: C Block Upper Band Edge 2nd adjacent 1 MHz



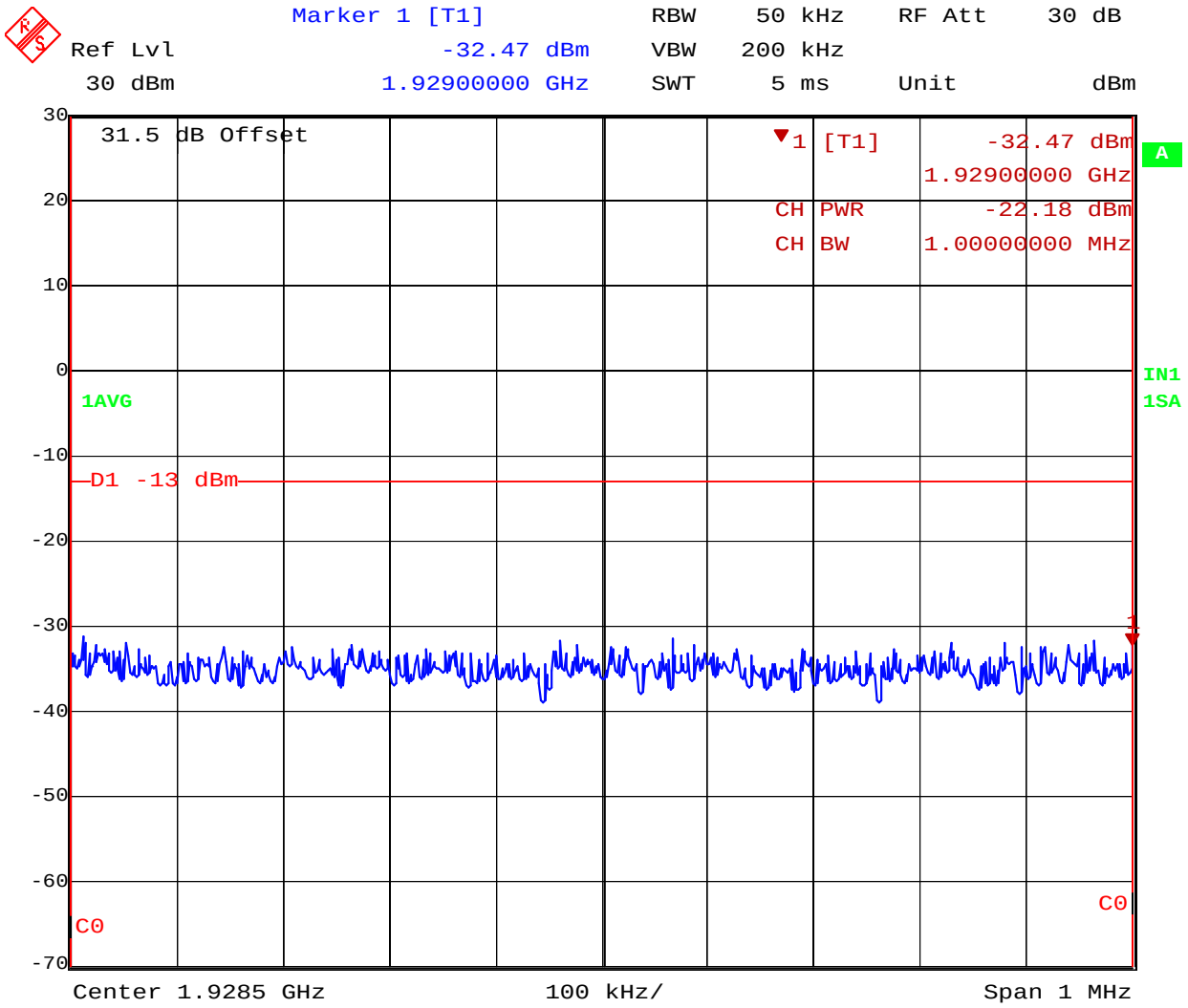
Title: CG-530
Comment A: C Band Ch 1125, 1150 & 1175 Outer Band Edge
Date: 29.MAY.2007 07:24:03

Figure 11: A Block Lower Band Edge 1st adjacent 1 MHz



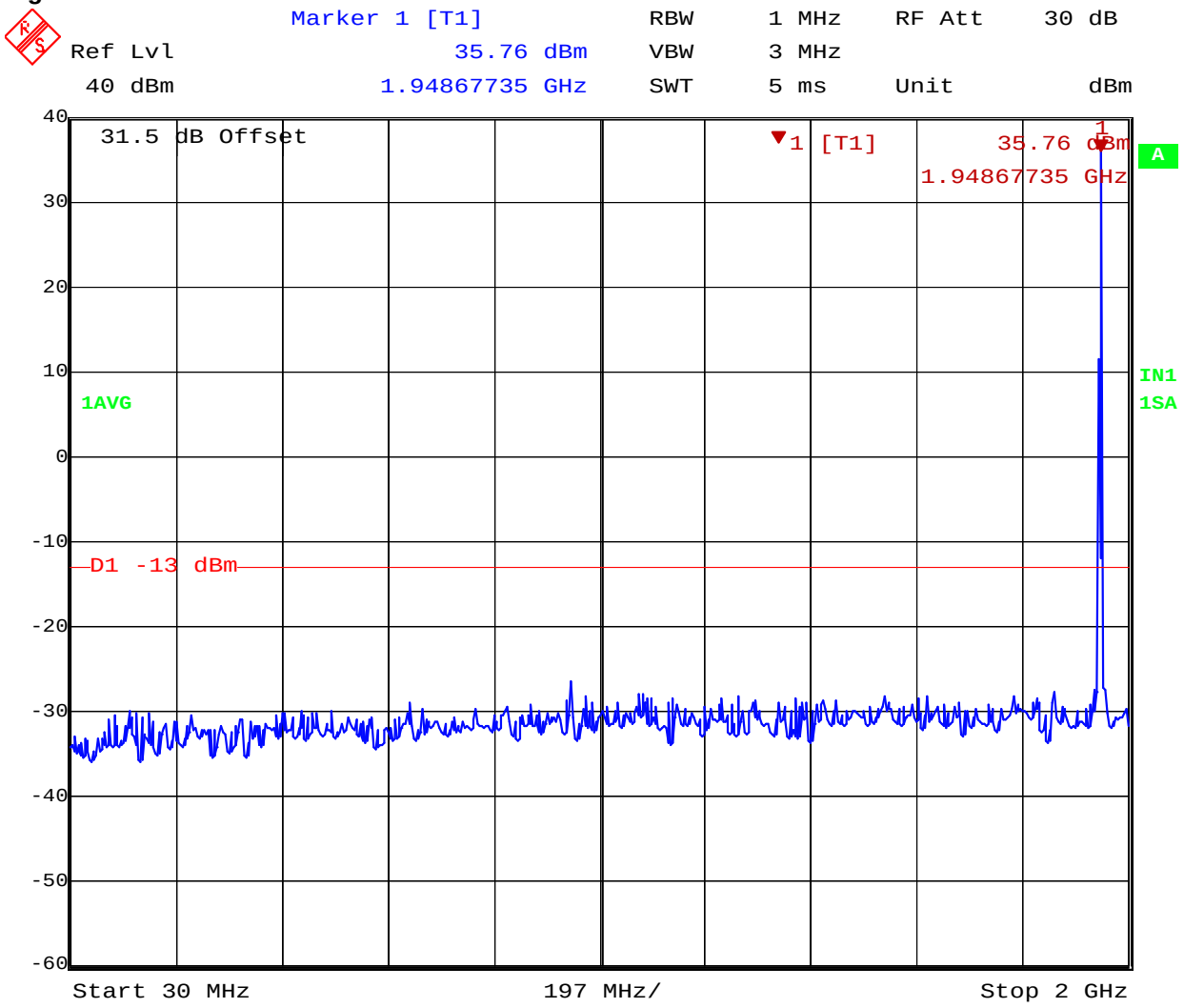
Title: CG-530
Comment A: A Band Ch 25,50,75 inner band edge
Date: 29.MAY.2007 09:32:11

Figure 12: A Block Lower Band Edge 2nd adjacent 1 MHz



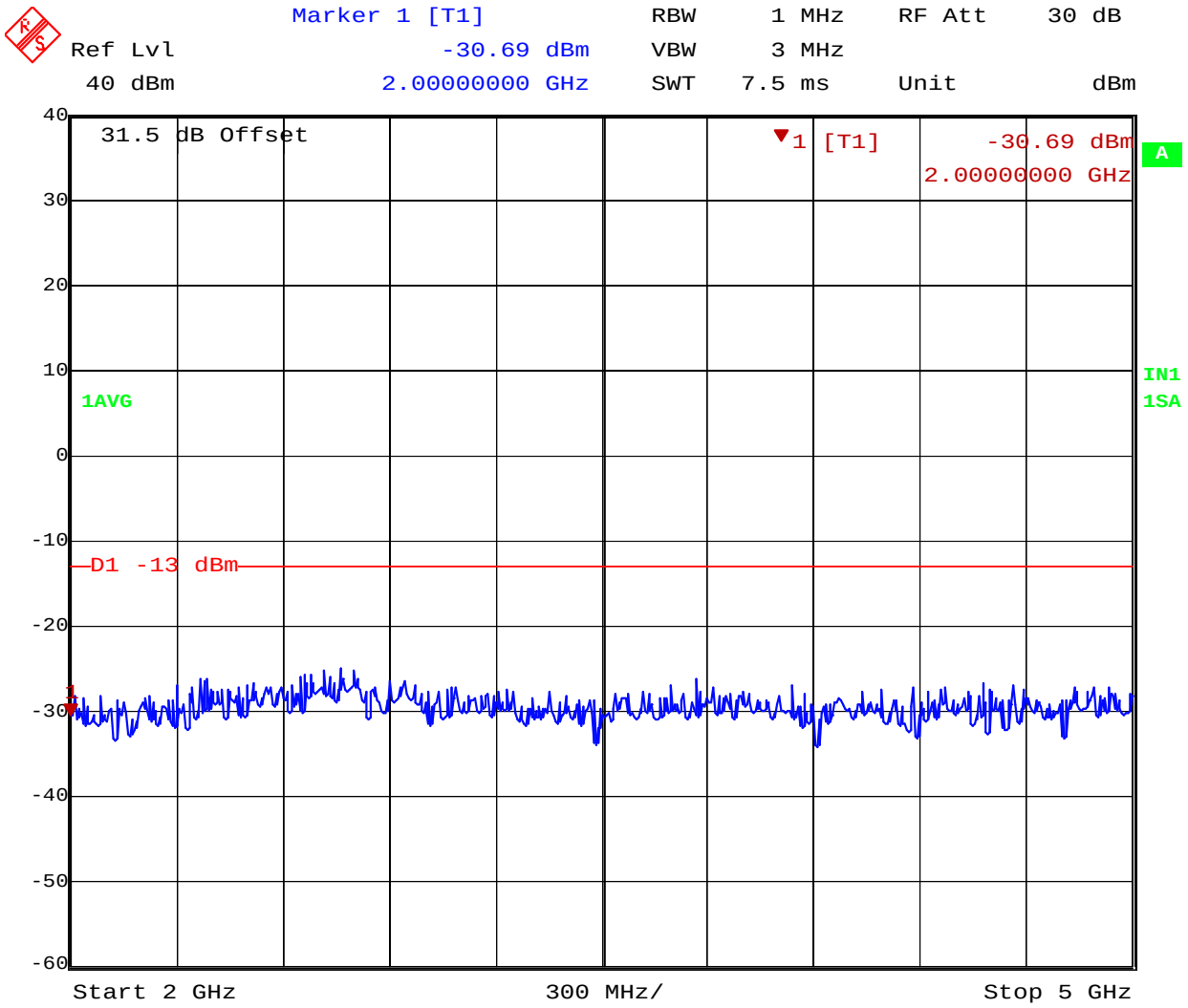
Title: CG-530
Comment A: A Band Ch 25,50,75 outer band edge
Date: 29.MAY.2007 09:34:02

Figure 13: 30 MHz – 2 GHz D Band



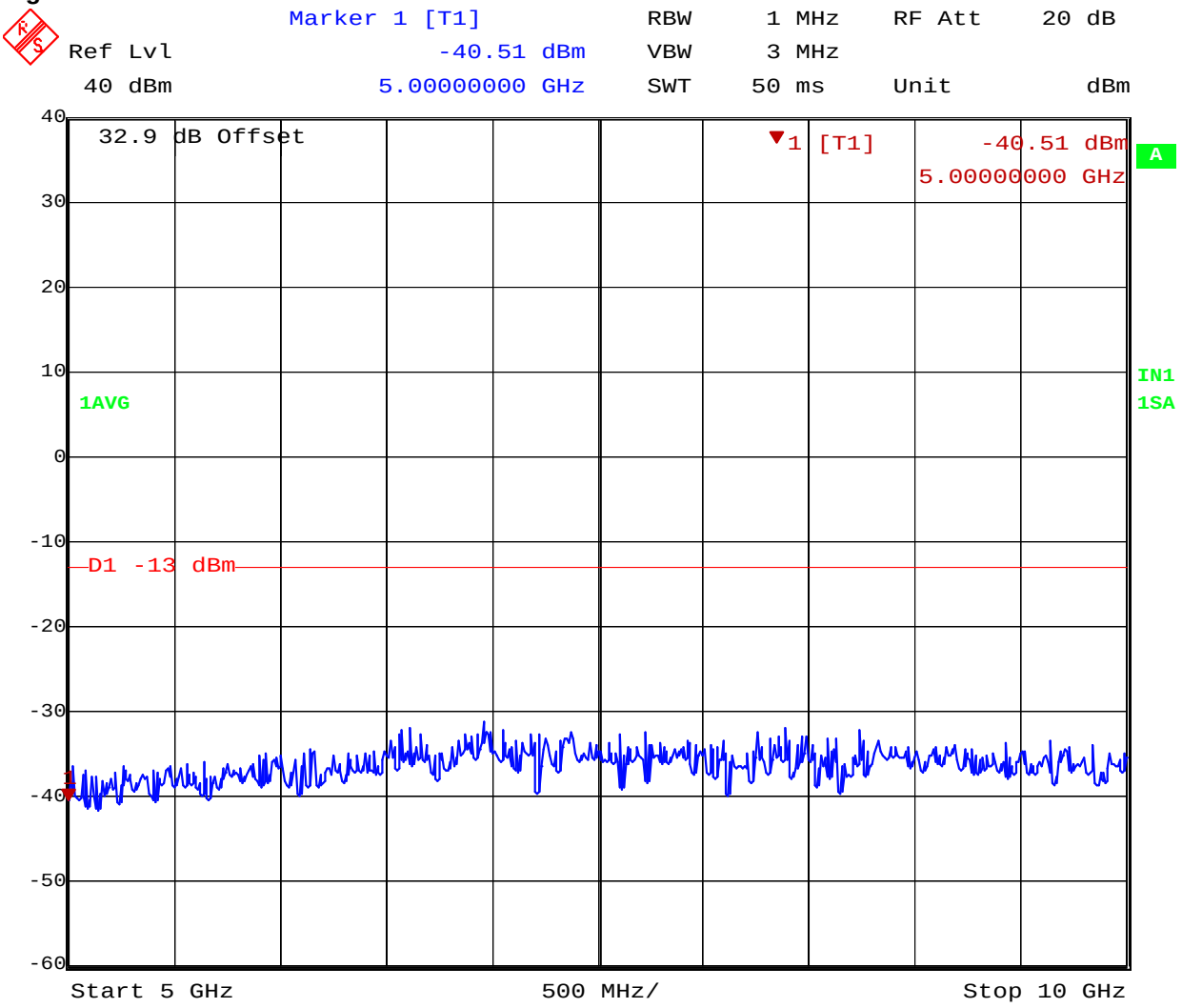
Title: CG-530
Comment A: D Band Conducted Spurs Ch 325 350 375 IS97 x 2, 16QAM
Date: 29.MAY.2007 13:24:54

Figure 14: 2GHz-5 GHz D Band



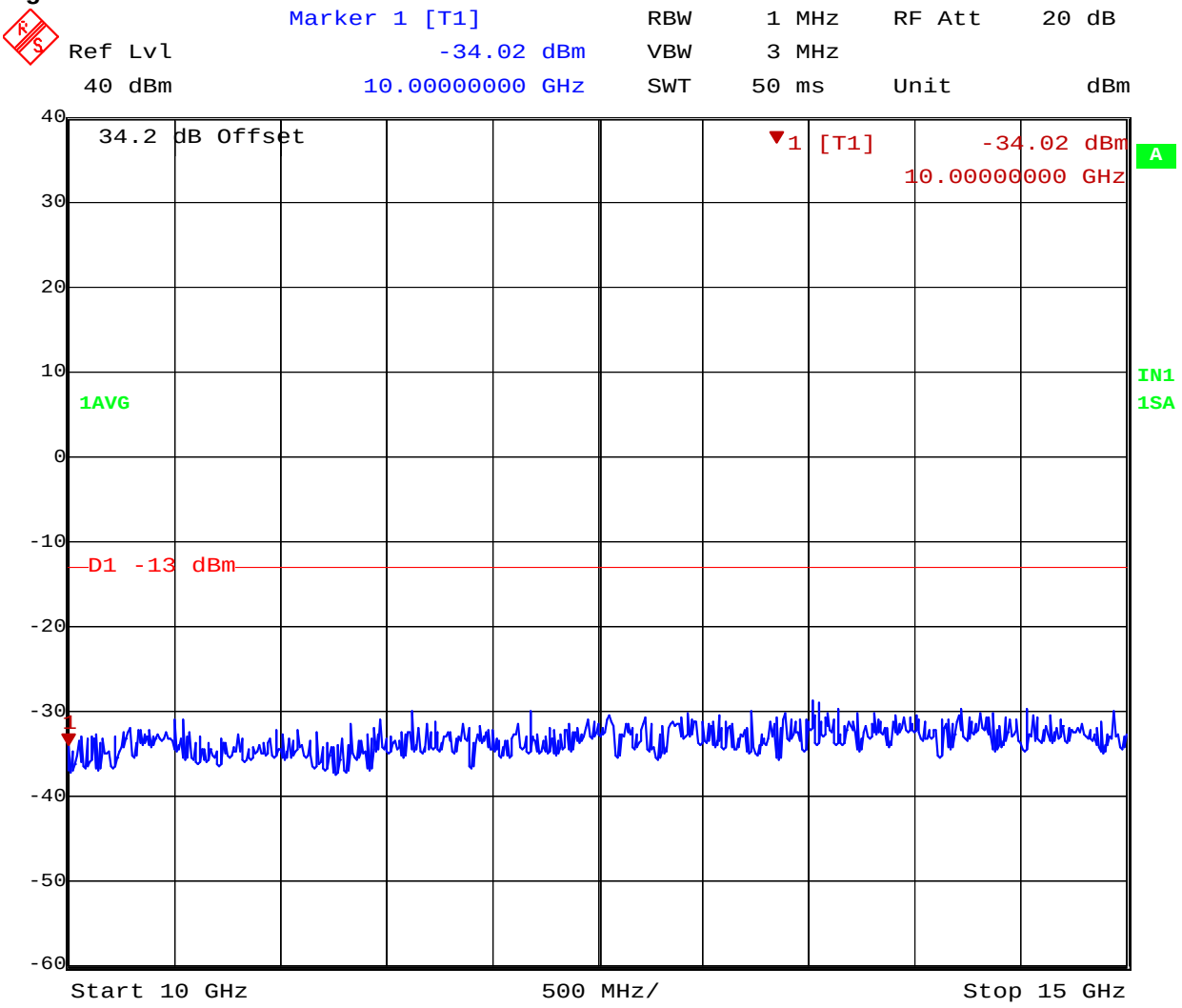
Title: CG-530
Comment A: D Band Conducted Spurs Ch 325 350 375 IS97 x 2, 16QAM
Date: 29.MAY.2007 13:26:17

Figure 15: 5GHz-10 GHz D Band



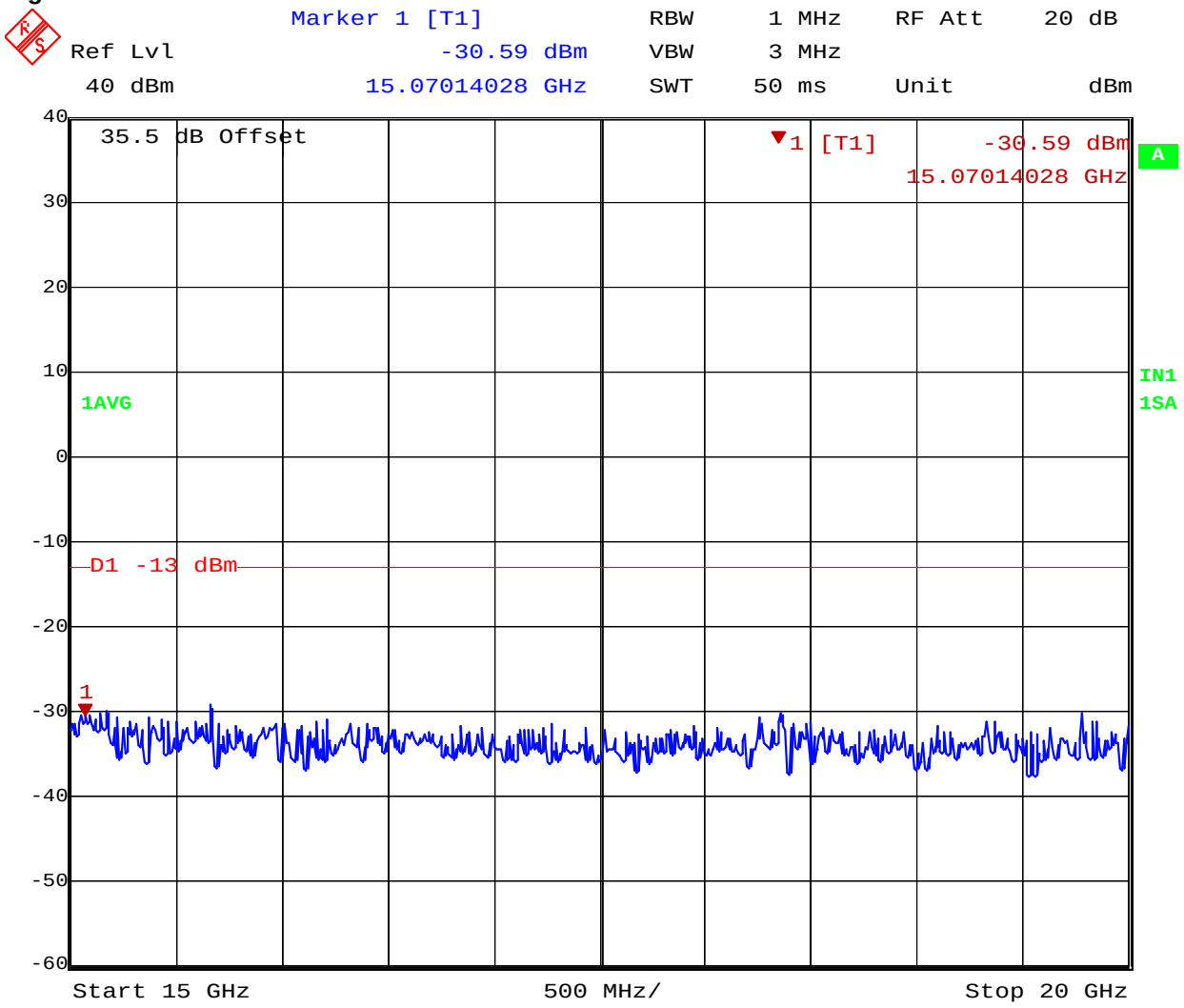
Title: CG-530
Comment A: D Band Conducted Spurs Ch 325 350 375 IS97 x 2, 16QAM
Date: 29.MAY.2007 13:27:45

Figure 16: 10-15 GHz D band



Title: CG-530
Comment A: D Band Conducted Spurs Ch 325 350 375 IS97 x 2, 16QAM
Date: 29.MAY.2007 13:33:52

Figure 17: 15-20 GHz D Band



Title: CG-530
Comment A: D Band Conducted Spurs Ch 325 350 375 IS97 x 2, 16QAM
Date: 29.MAY.2007 13:35:15

APPENDIX D: FREQUENCY STABILITY

D.1. Base Standard & Test Basis

Base Standard	FCC 24.235
Test Basis	FCC Part 2.1055
Test Method	FCC Part 2.1055/EIA/TIA 603

D.2. FCC Part 2.1055

(a) The frequency stability shall be measured with variation of ambient temperature as follows:
(1) From -30 to +50 centigrade for all equipment except that specified in subparagraphs (2) and (3) of this paragraph.

(b) Frequency measurements shall be made at the extremes of the specified temperature range and at intervals of not more than 10 centigrade through the range. A period of time sufficient to stabilize all of the components of the oscillator circuit at each temper ature level shall be allowed prior to frequency measurement. The short term transient effects on the frequency of the transmitter due to keying (except for broadcast transmit ters) and any heating element cycling normally occurring at each ambient temperature level also shall be shown. Only the portion or portions of the transmitter containing the frequency determining and stabilizing circuitry need be subjected to the temperature variation test.

(d) The frequency stability shall be measured with variation of primary supply voltage as follows:

(1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment.
(2) For hand carried, battery powered equipment, reduce primary supply voltage to the battery operating end point which shall be specified by the manufacturer.
(3) The supply voltage shall be measured at the input to the cable normally provided with the equipment, or at the power supply terminals if cables are not normally provided. Effects on frequency of transmitter keying (except for broadcast transmitters) and any heating element cycling at the nominal supply voltage and at each extreme also shall be shown.

(e) When deemed necessary, the Commission may require tests of frequency stability under conditions in addition to those specifically set out in paragraphs (a), (b), (c) and (d) of this section. (For example, measurements showing the effect of proximity to large metal objects, or of various types of antennas, may be required for portable equip ment.)

FCC Part 24.235 Limit

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

D.3. Measurement Uncertainty

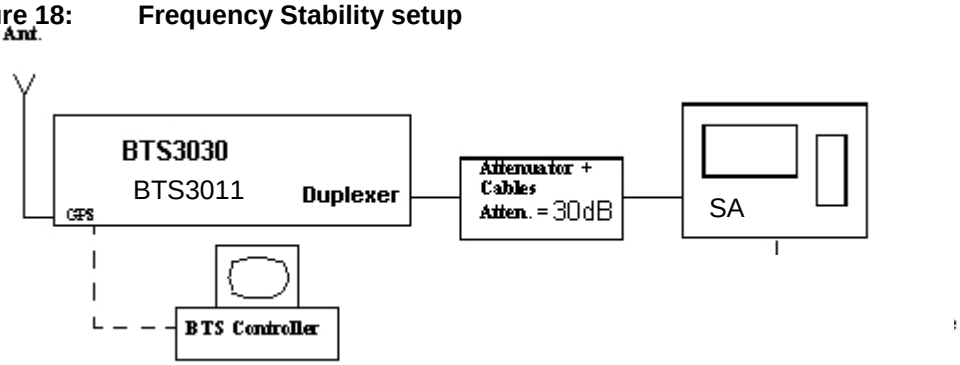
Expanded Uncertainty (K=2)
1.11/-1.22

D.4. Deviations

Deviation Number	Time & Date	Description and Justification of Deviation	Deviation Reference			Approval
			Base Standard	Test Basis	NTS Procedure	
none						

D.5. Test Set Up

Figure 18: Frequency Stability setup



D.6. Test Results

Complies. The maximum frequency drift in Hz is 2995 Hz. This is sufficient to ensure the fundamental stays within the assigned PCS block.

Table 8: Frequency stability data

Channel/Frequency (MHz)	Operating conditions (Temp celcius)	Frequency Drift (Hz)
Ch – 925-1976.25 MHz	50	2000
Ch – 925-1976.25 MHz	40	2005
Ch – 925-1976.25 MHz	30	2000
Ch – 25-1976.25 MHz	20	1975
Ch – 25-1976.25 MHz	20 C @ 138 VAC	0
Ch – 25-1976.25 MHz	20 C @ 102 VAC	2005
Ch – 925-1976.25 MHz	10	2995
Ch – 925-1976.25 MHz	0	2000
Ch – 925-1976.25 MHz	-10	2000
Ch – 925-1976.25 MHz	-20	2100
Ch – 925-1976.25 MHz	-30	2100

APPENDIX E: RADIATED E-FIELD EMISSIONS – 30 MHZ – 20 GHZ

E.1. Base Standard & Test Basis

Base Standard	☒	CFR Title 47 – Telecommunications, Chapter I, Subchapter B, FCC Part 24 – Personal Communication Services
Test Basis	☒	EIA/TIA 603
Test Method	• NTS Radiated Emissions 30MHz – 1GHz Automated Test Method E001R7 • NTS Radiated Emissions 1GHz – 40 GHz Manual Test Method E006R4 • NTS Radiated Emissions Signal Substitution Method 30MHz - 20GHz. EMC Test Method 11.0, Revision 01	

E.2. Specifications

Frequency	☐	**47 CFR FCC Part 22**	
	☒	**47 CFR FCC Part 24**	
		Theoretical Peak @ 3m[1]	**ERP[2]**
MHz		**dBµV/m**	**dBm**
1000 - 20000		84.3	-13

Note 1: Calculated using: Pd-(43 + 10 log(Pw)
where Pd is the EUT power in dBm and Pw is the EUT power in watts
Note 2: Calculated using: 120+20log(SQRT(49.2*Pw)/3)
where Pw is the EUT power in watts

E.3. Measurement Uncertainty

Radiated Emissions (dB)	**Measurement Uncertainty**	**Expanded Uncertainty (K=2)**
30 MHz – 1 GHz	+2.32/-2.36	+4.65/-4.72
1 GHz – 20 GHz	+3.48/-3.51	+6.96/-7.02

E.4. Deviations

Deviation Number	Time & Date	Descriptions	Deviation Reference			Approval
			Base Standard	Test Basis	NTS Procedure	
None						

E.5. Special Considerations

None

E.6. Test Results

Compliance Scan Summary: 30 MHz – 1 GHz

Product Integrity Laboratory V2.5

Project Number: CG-530 **Tester:** Deniz Demirci
Model: Nortel BTS3011 **Test ID:** RE02c-10m-530
Comments: Conf143;BTS3011 Rel4 DOU, EMIgas.toSnout, gnd strap to DOM, new DOM baffel plate. Slew rate 50 ohm res. on HSSL, inline 1nF fil.onT1, AC cable in conduit, 208VAC 60Hz

Standard: EN55022_B **Measurement Distance:** <1GHz 10 meters; >1GHz 3 meters

Antenna Polarization	Frequency (MHz)	Measured Level (dBµV)	Measurement Detector	Correction Factors (dB/m)	Emission Level (dBµV/m)	Limit Line	Limit (dBµV/m)	Margin (dB)	Mast Height (cm)	Turntable Angle (degrees)
Horizontal	199.999	36.46	Q.Peak	-14.83	21.63	Q.Peak	30.00	8.37	174	79
Horizontal	319.489	37.93	Q.Peak	-9.85	28.08	Q.Peak	37.00	8.92	101	200
Horizontal	638.977	32.32	Q.Peak	-4.98	27.34	Q.Peak	37.00	9.66	303	134
Horizontal	958.465	30.47	Q.Peak	-1.35	29.12	Q.Peak	37.00	7.88	208	125
Vertical	199.999	30.95	Q.Peak	-13.92	17.03	Q.Peak	30.00	12.97	286	118
Vertical	319.489	37.2	Q.Peak	-9.75	27.45	Q.Peak	37.00	9.55	241	203
Vertical	638.977	33.57	Q.Peak	-4.85	28.72	Q.Peak	37.00	8.28	265	351
Vertical	958.465	35.27	Q.Peak	-0.56	34.71	Q.Peak	37.00	2.29	147	34

Positive Margin indicates a Pass

The highest emission measured was 34.71 dBµV/m with vertical antenna polarization at 958.465 MHz. It has 2.29 dB margin to the EN55022 Class B limit.

Pursuant to FCC CFR47 Part 15 clause 15.109g, compliance with the CISPR 22 limits were used to show compliance with the FCC requirements.

The EUT is in compliance with FCC CFR47 Part 24 Radiated Emission requirements.

Compliance Scan Summary: 1 GHz – 20 GHz

There was no FCC Part 24 related emission detected

The EUT is in compliance with FCC CFR47 Part 24 Radiated Emission requirements.

E.7. Observations

T1/E1 and DOM were not configured for these tests

E.8. Sample Calculation

3m Limit = 10m Limit – 20 * log (3/10)
Emission Level = Measured Level + Correction Factors
Margin = Limit – Emission Level
ERP Limit (dBm) = Pd-(43 + 10 log(Pw)
where Pd is the EUT power in dBm and Pw is the EUT power in watts
Theoretical ERP Limit (dBuV/m) 120+20log(SQRT(49.2*Pw)/3)
where Pw is the EUT power in watts

E.9. Test Data & Photographs

The test data and photographs collected during this test appear following this page.

Note: In some bands, a lower RBW detector was used to identify and detect emissions with better measurement system sensitivity.

E.10. Tested By

This testing was conducted in accordance with the ISO 17025:1999 scope of accreditation table 1; Quality Manual.

Name: Deniz Demirci
Function: EMC Specialist

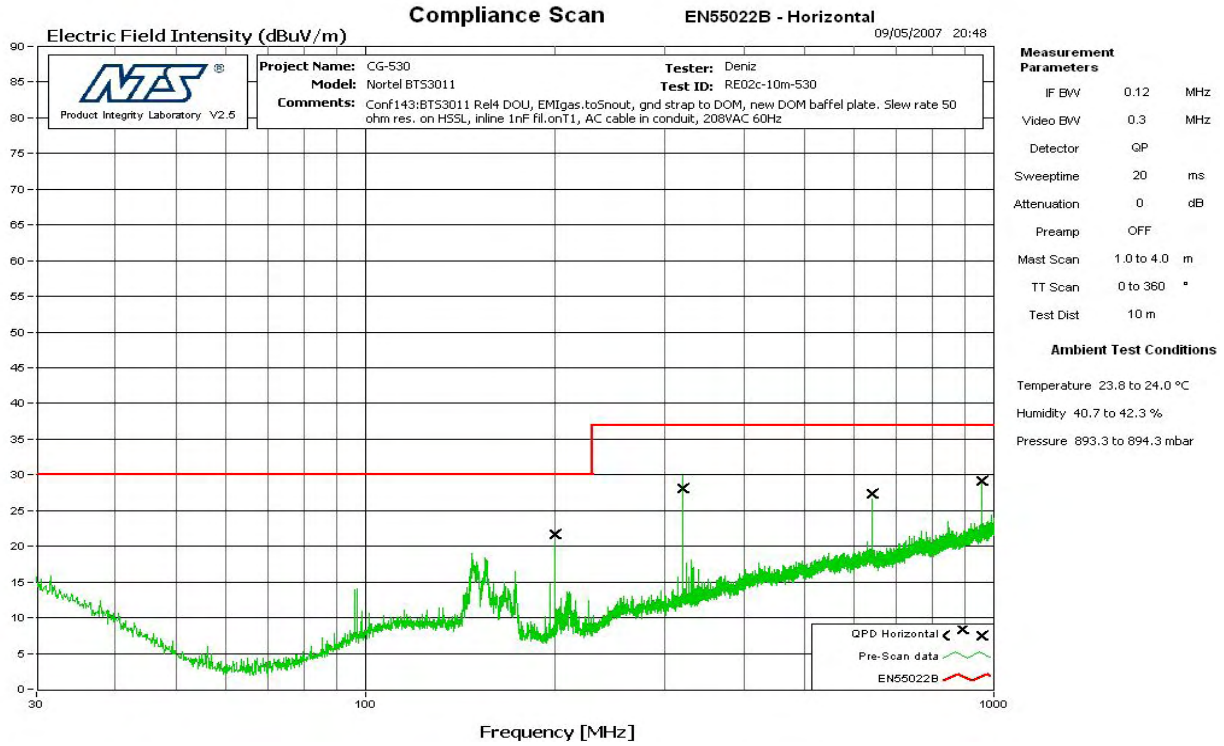


Figure 19: Radiated Emission – Horizontal - 30 MHz – 1 GHz

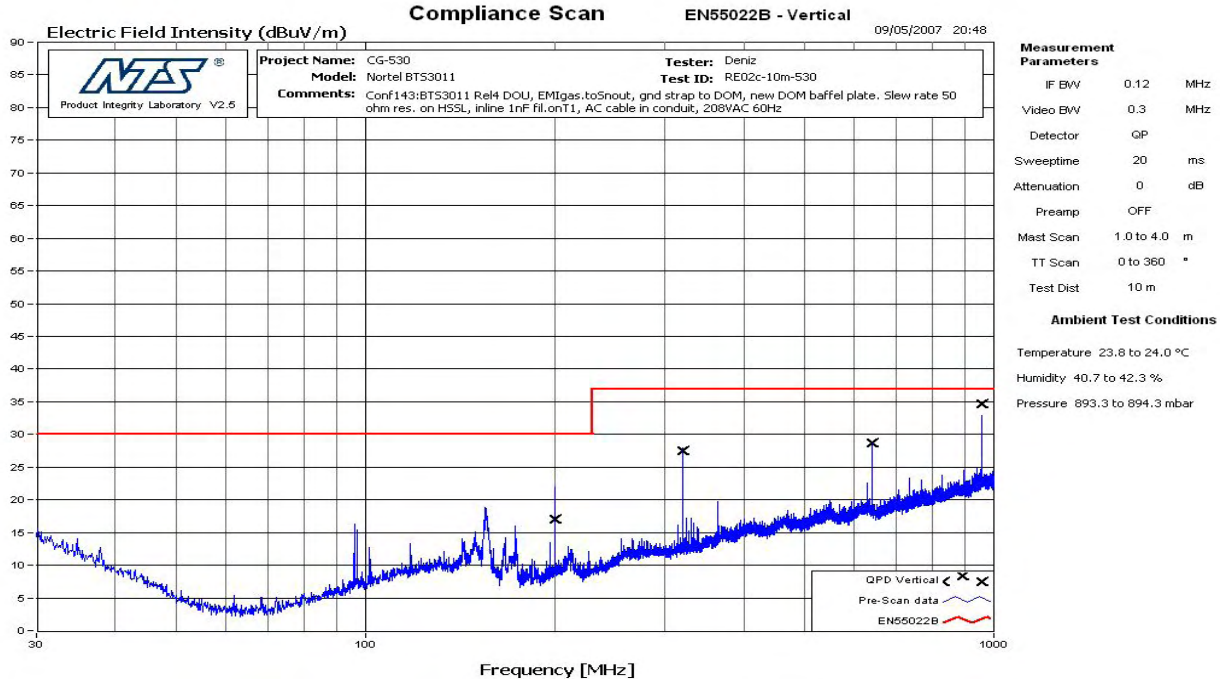


Figure 20: Radiated Emission – Vertical – 30 MHz – 1 GHz

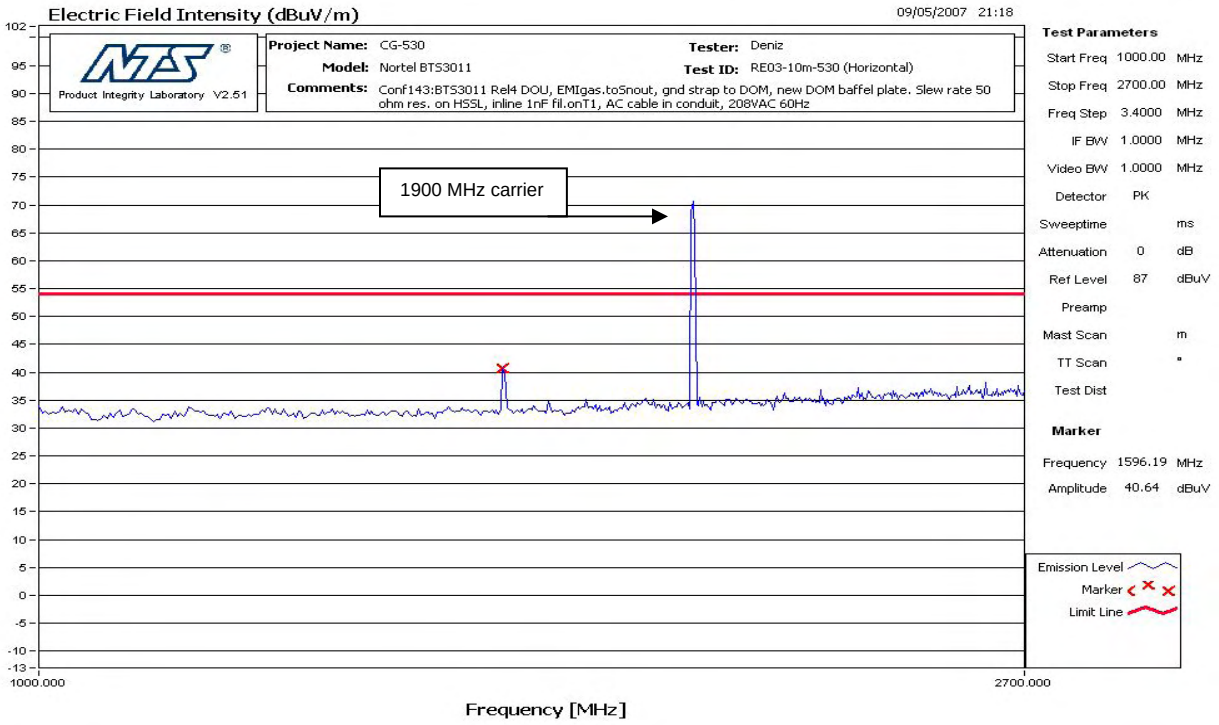


Figure 21: Radiated Emission – Horizontal - 1 GHz – 2.7 GHz

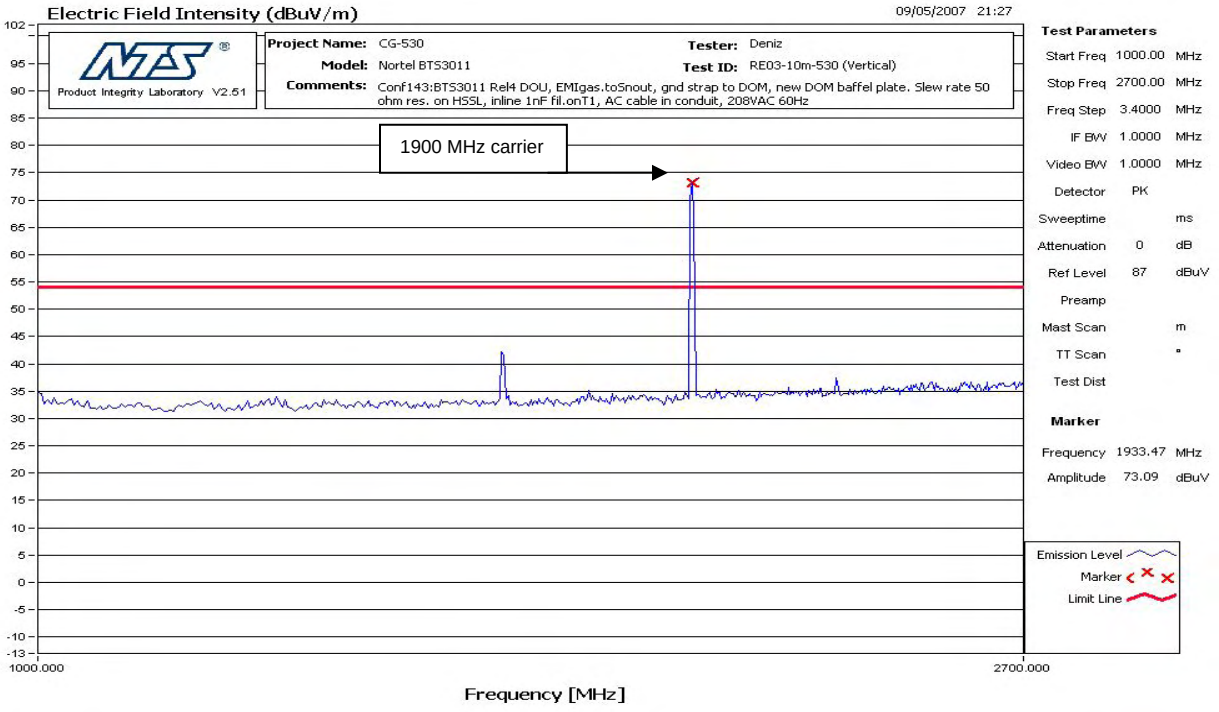


Figure 22: Radiated Emission – Vertical - 1 GHz – 2.7 GHz

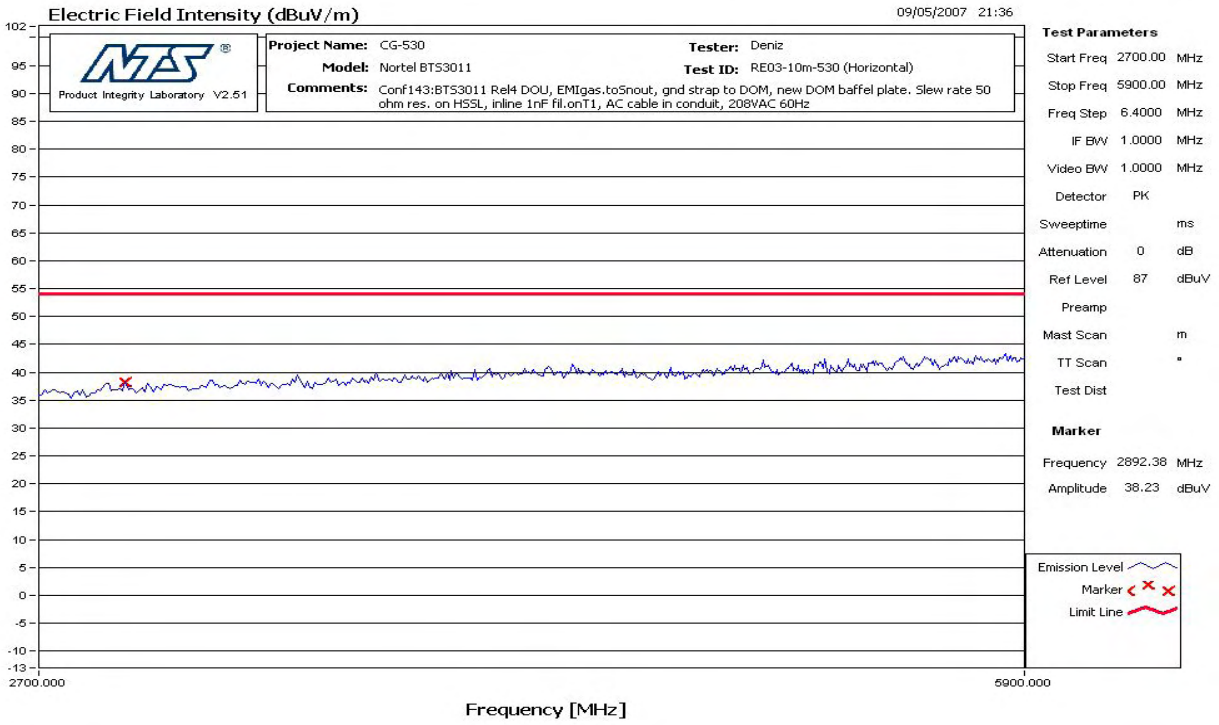


Figure 23: Radiated Emission - Horizontal – 2.7 GHz – 5.9 GHz

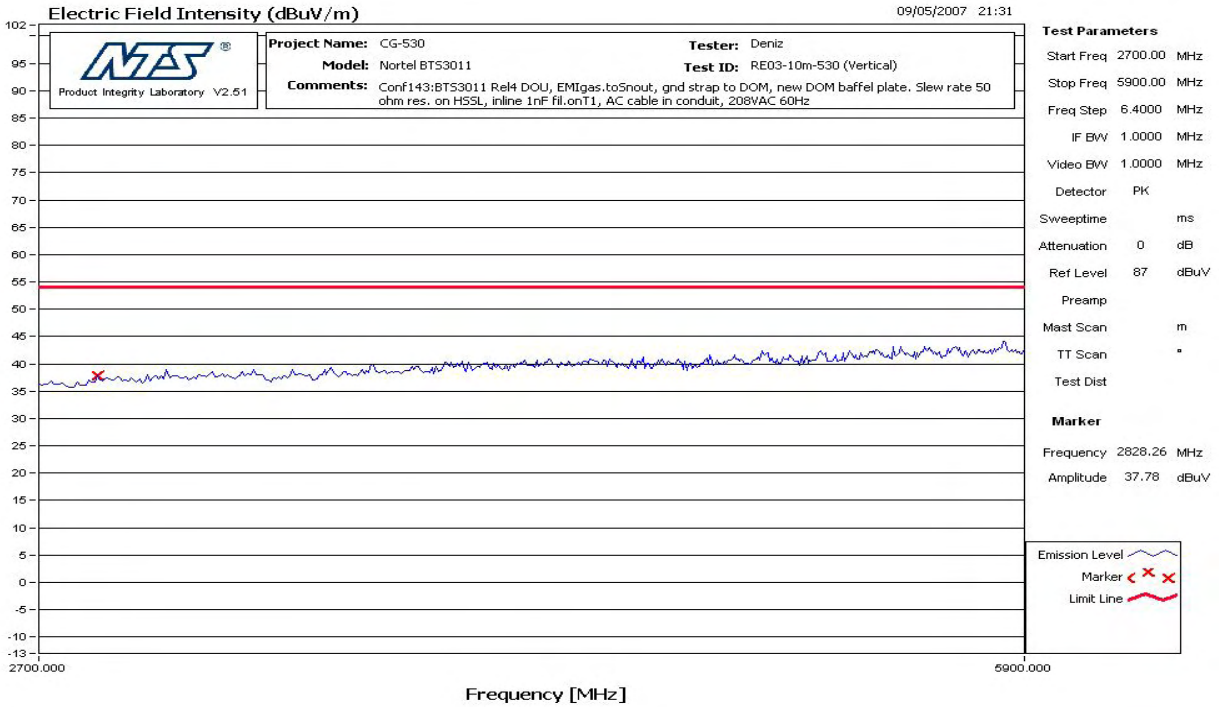


Figure 24: Radiated Emission - Vertical – 2.7 GHz – 5.9 GHz

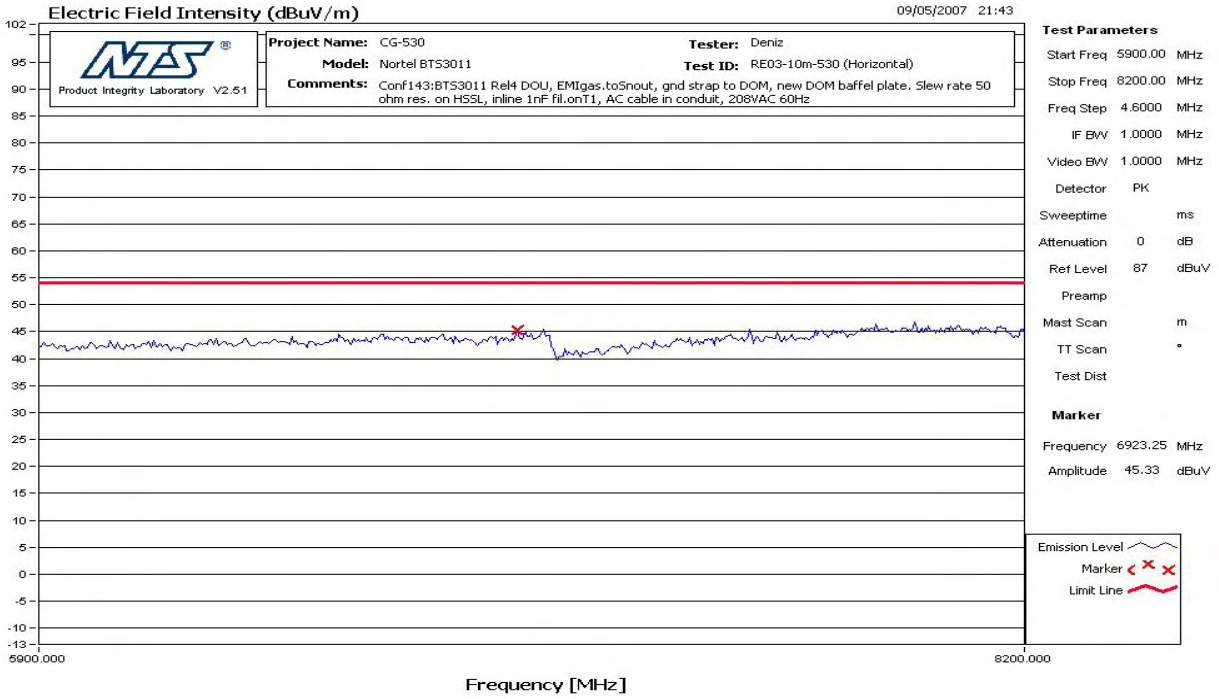


Figure 25: Radiated Emission - Horizontal – 5.9 GHz – 8.2 GHz

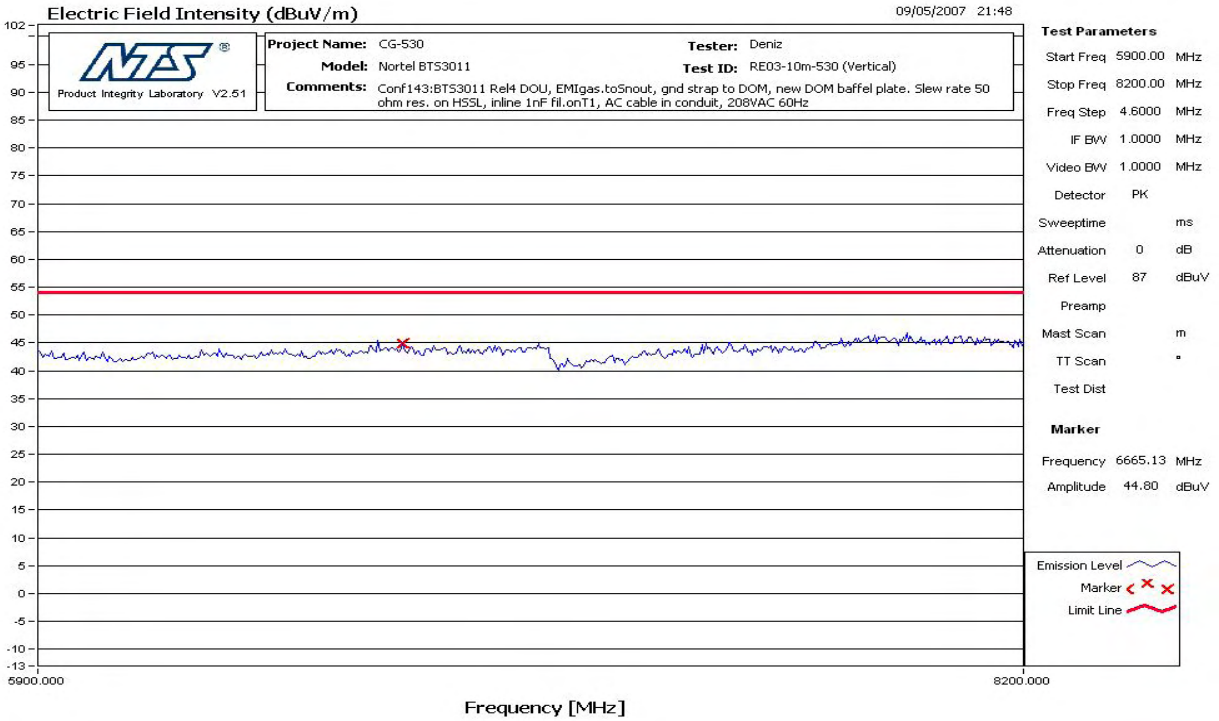


Figure 26: Radiated Emission - Vertical – 5.9 GHz – 8.2 GHz

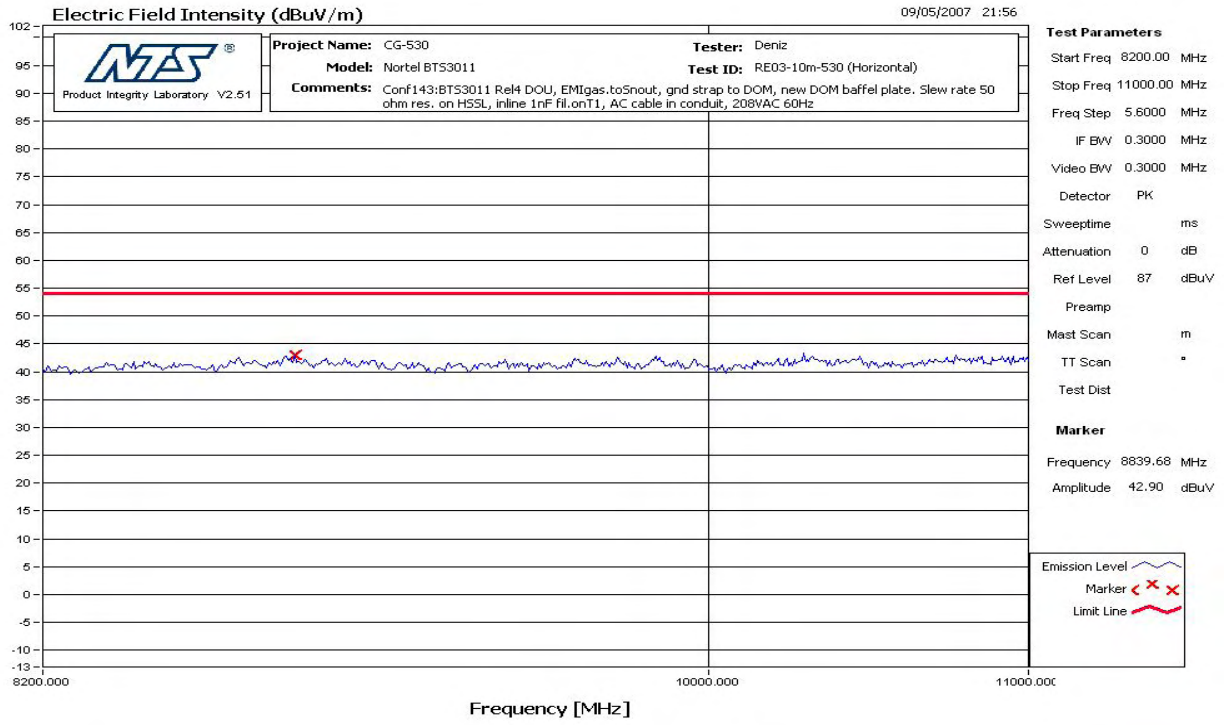


Figure 27: Radiated Emission - Horizontal – 8.2 GHz – 11 GHz

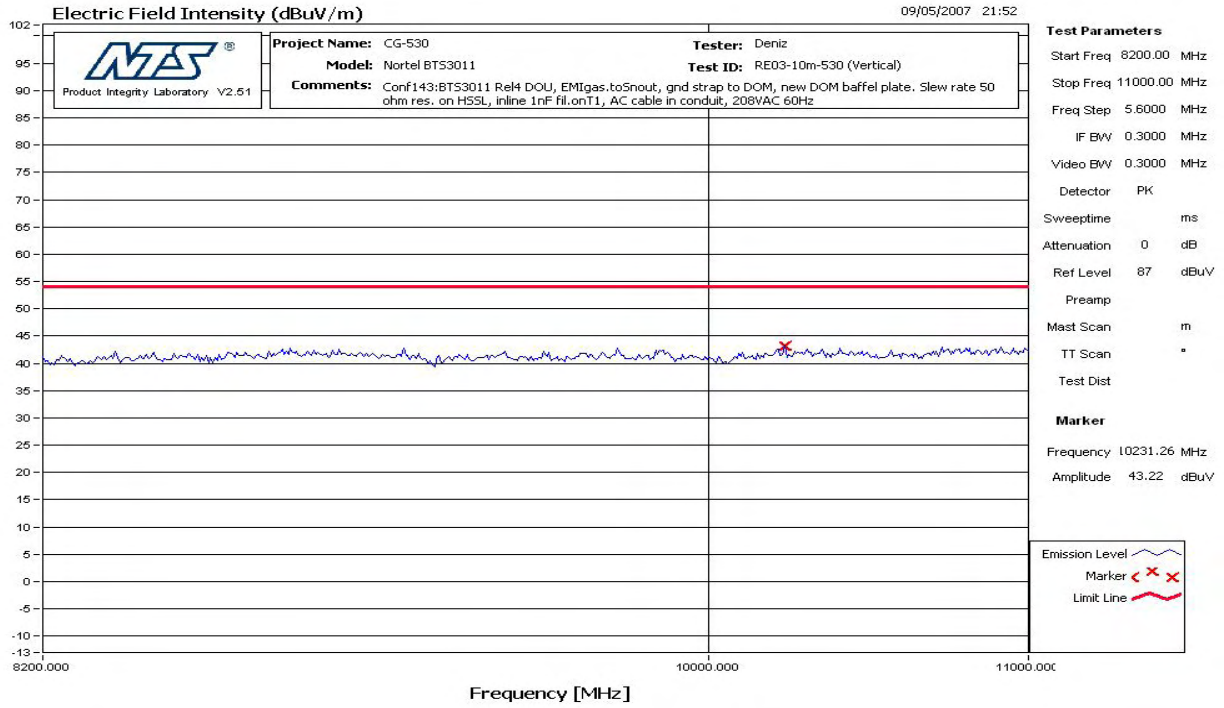


Figure 28: Radiated Emission - Vertical – 8.2 GHz – 11 GHz

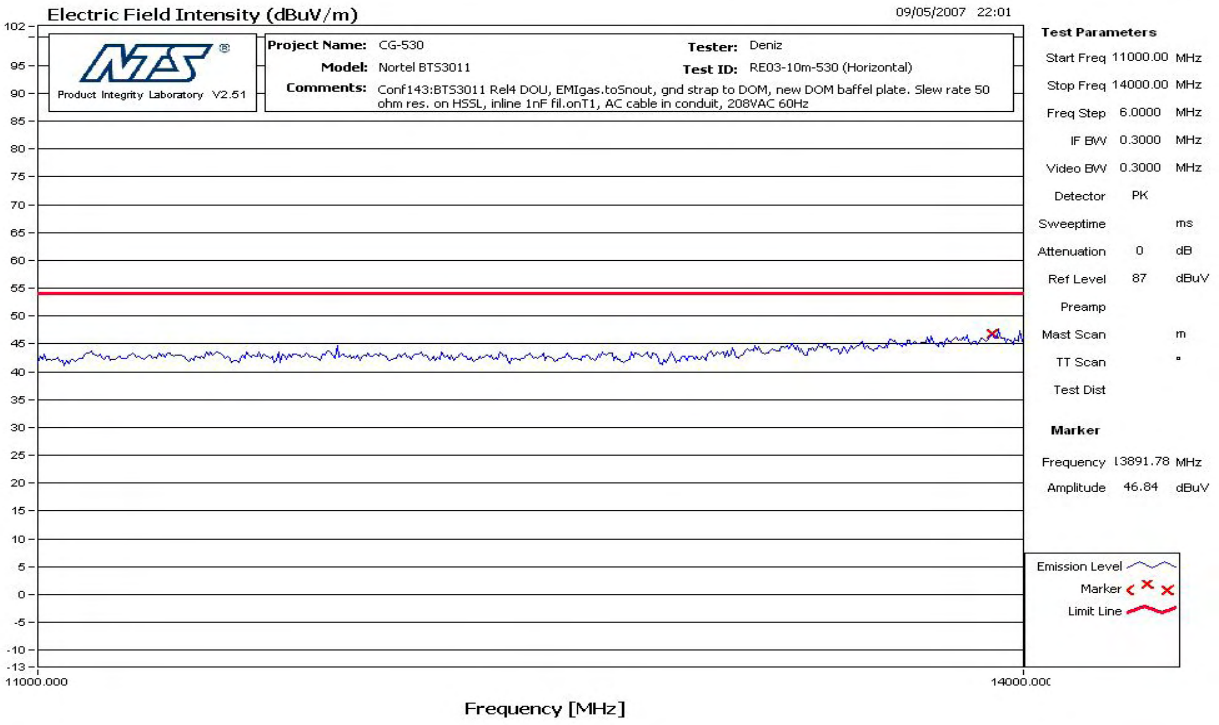


Figure 29: Radiated Emission - Horizontal – 11 GHz – 14 GHz

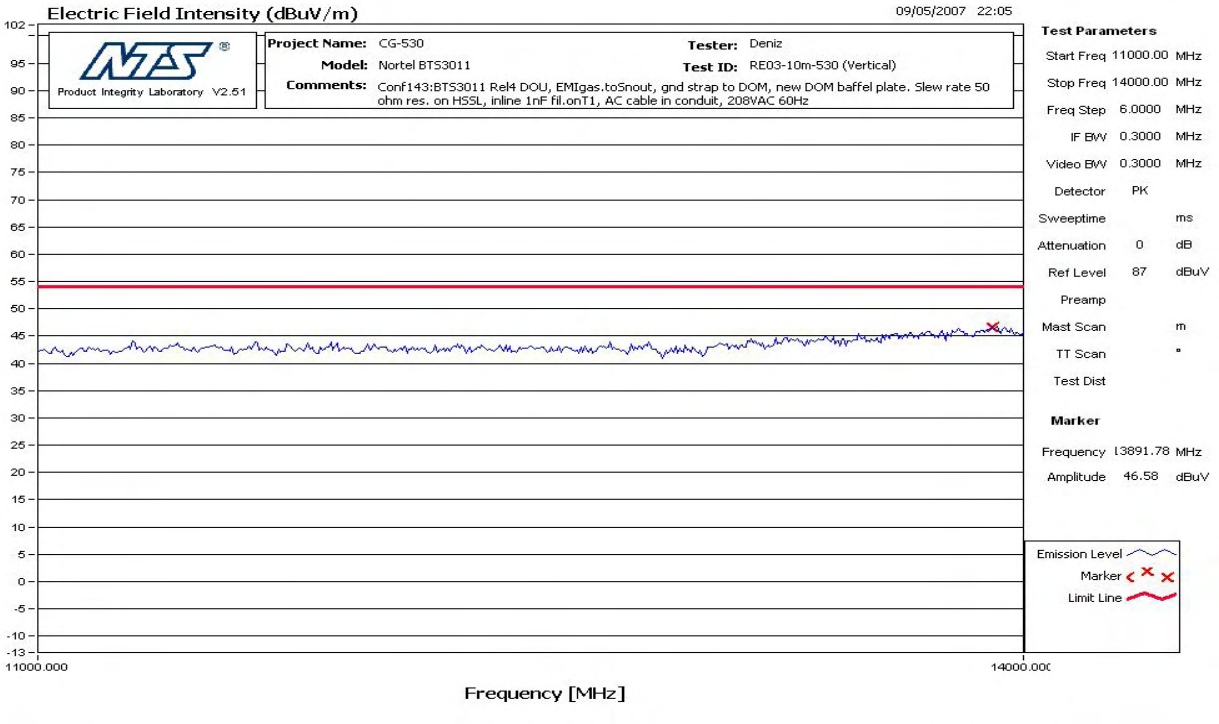


Figure 30: Radiated Emission - Vertical – 11 GHz – 14 GHz

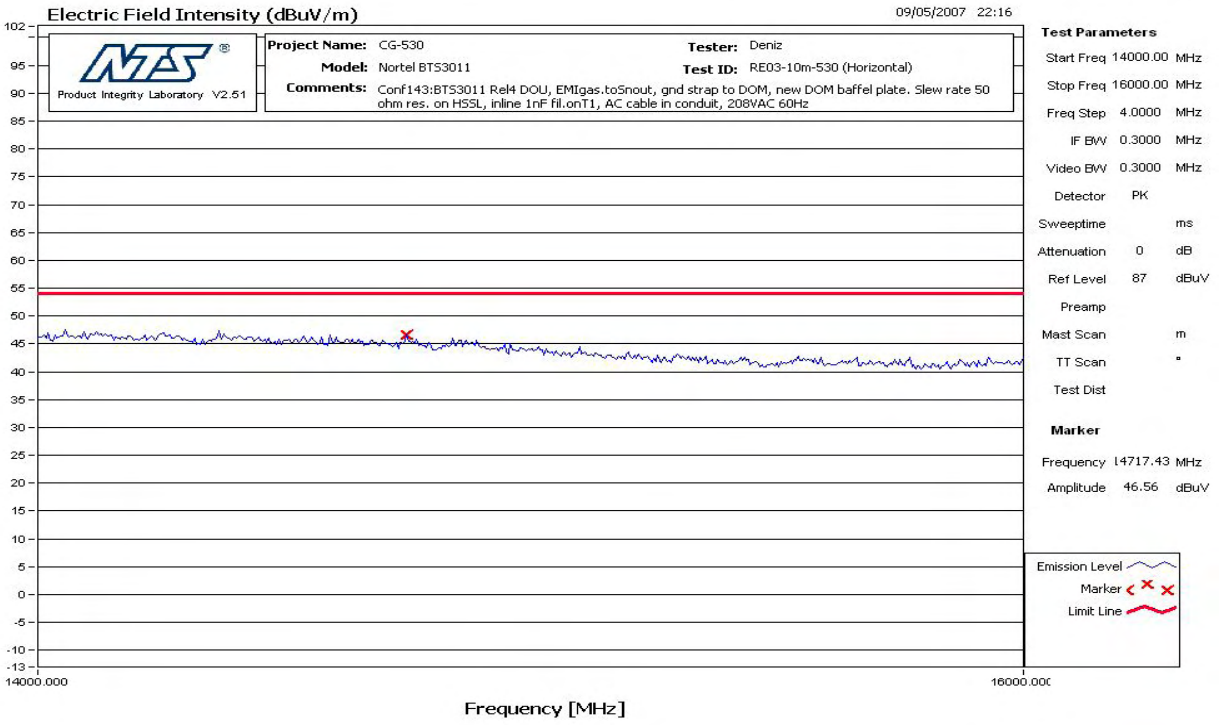


Figure 31: Radiated Emission - Horizontal – 14 GHz – 16 GHz

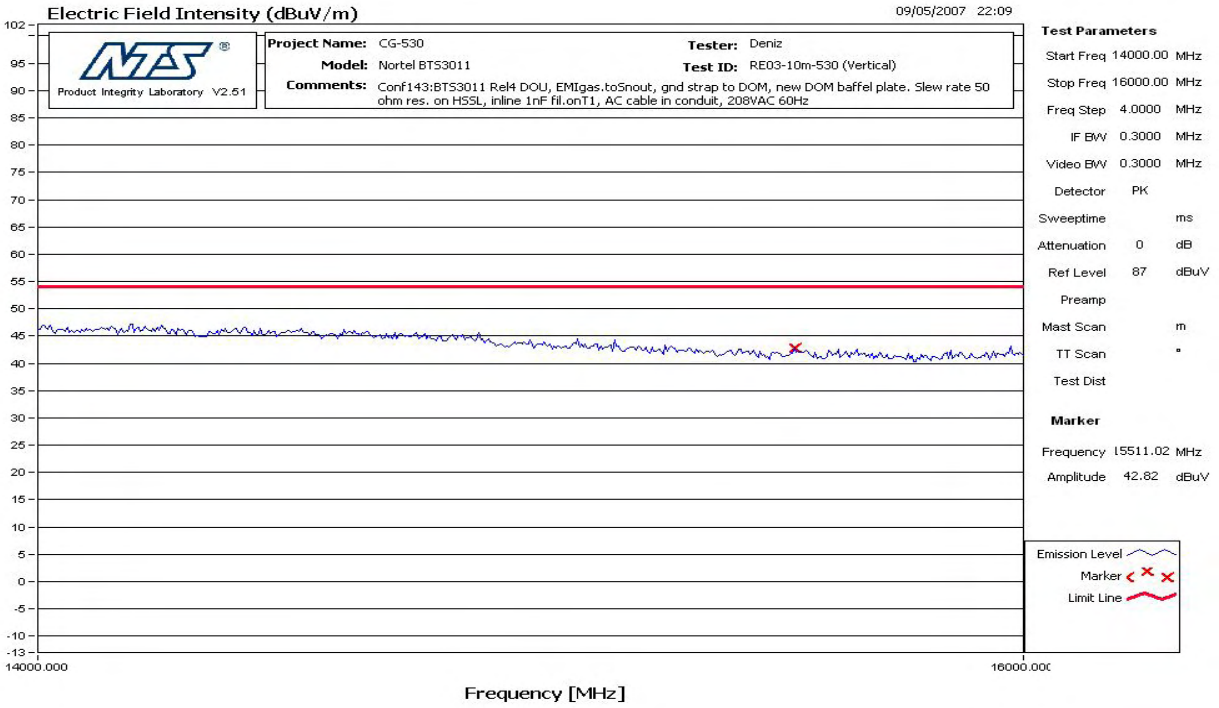


Figure 32: Radiated Emission - Vertical – 14 GHz – 16 GHz

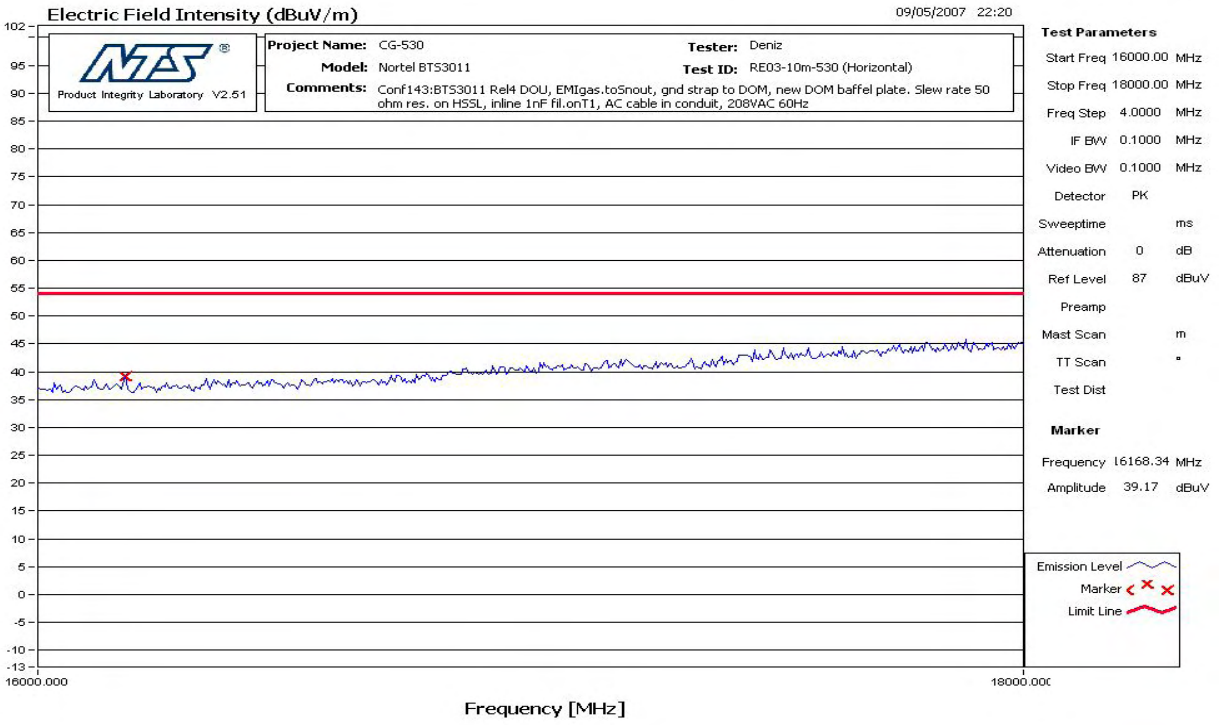


Figure 33: Radiated Emission - Horizontal – 16 GHz – 18 GHz

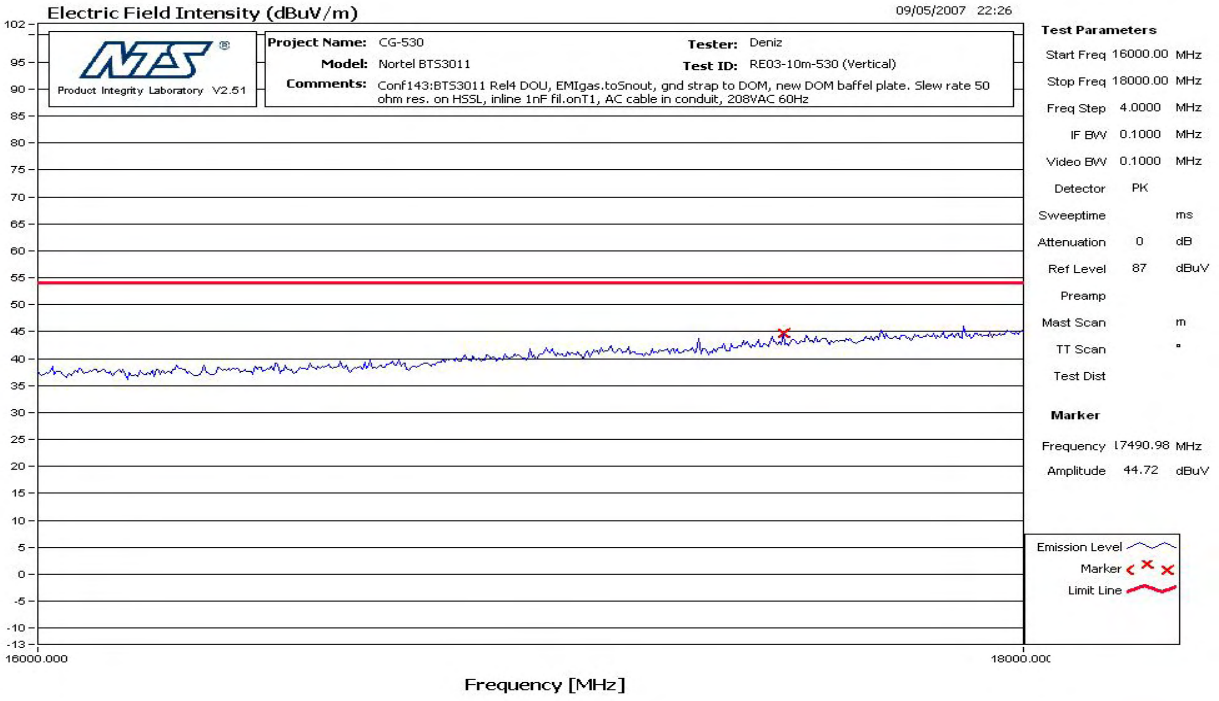


Figure 34: Radiated Emission - Vertical – 16 GHz – 18 GHz

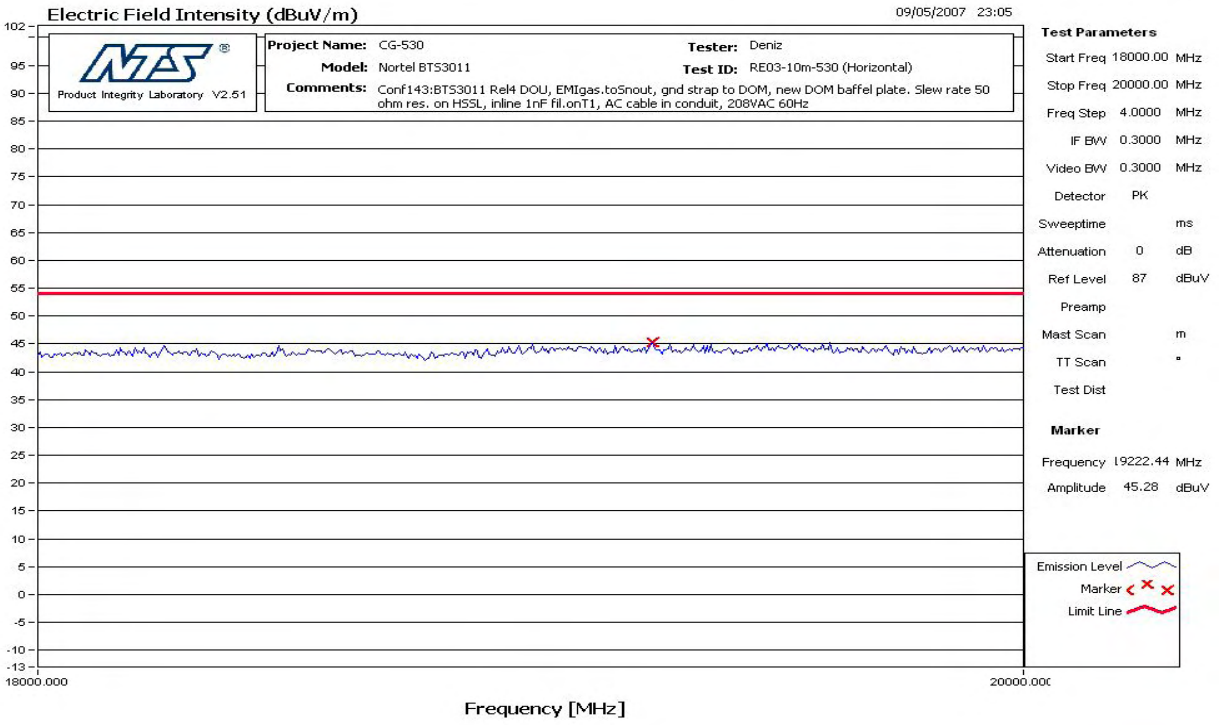


Figure 35: Radiated Emission - Horizontal – 18 GHz – 20 GHz

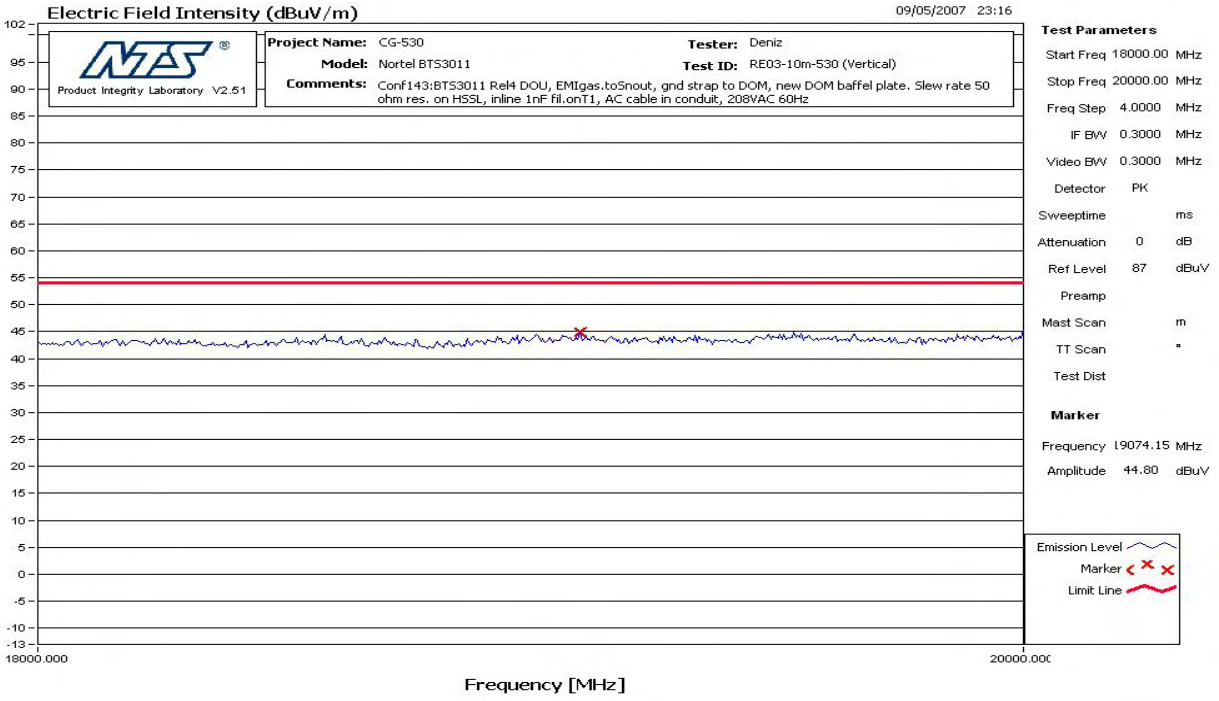


Figure 36: Radiated Emission - Vertical – 18 GHz – 20 GHz

APPENDIX F: CONDUCTED AC VOLTAGE EMISSIONS – 150 KHZ – 30 MHZ

F.1. Base Standard & Test Basis

Base Standard	☒	CFR Title 47 – Telecommunications, Chapter I - FCC Part 15 – Radio Frequency Devices - Subpart B – Unintentional Radiators
	☐	GR-1089-CORE:2002 Electromagnetic Compatibility and Electrical Safety Generic Criteria for Network Telecommunications Equipment
	☒	EN 55022:1998 ITE Radio Disturbance Characteristics
	☐	EN 300-386:2001 Electromagnetic compatibility and Radio Spectrum Matters (ERM); Telecommunication network equipment; Electromagnetic Compatibility (EMC) requirements
Test Basis	☒	ANSI C63.4-2001 Methods of Measurement of Radio Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
	☐	CISPR 16: 1993 Specifications for radio disturbances and immunity measuring apparatus and methods – Part 1: Radio Disturbances and immunity measuring apparatus
	☒	CISPR 22: 1997 Information technology equipment – Radio Disturbance characteristics - Limits and methods of measurement
Test Method	NTS Conducted Emissions 150kHz – 30MHz Automated Test Method 6.0A R2	

F.2. Specifications

Frequency	☐ **Class A**		☒ **Class B**	
Limit	**Quasi-Peak**	**Average**	**Quasi-Peak**	**Average**
MHz	**dBµV**	**dBµV**	**dBµV**	**dBµV**
0.150 – 0.500	79.00	66.00	66 to 56[1]	56 to 46[1]
0.500 – 5.00	73.00	60.00	56	46
5.00 – 30.00	73.00	60.00	60	50

Note 1: decrease with the logarithm of the frequency

F.3. Measurement Uncertainty

Conducted Current Emissions 150 kHz – 30 MHz	**Measurement Uncertainty**	**Expanded Uncertainty (K=2)**
(dB)	+1.21/-1.33	+2.41/-2.66

F.4. Deviations

Deviation Number	**Time & Date**	**Description and Justification of Deviation**	**Deviation Reference**			**Approval**
			Base Standard	**Test Basis**	**NTS Procedure**	
none						

F.5. Test Results

Product Integrity Laboratory V2.5		
Project Number:	CG-530	**Tester:** Glen Moore
Model:	Nortel Networks vBTS3011	**Test ID:** CE02c-10m-530
Comments:	Conf144: BTS3011 Rel4 DOU, EMIgas.toSnout, gnd strap to DOM, new DOM baffel plate. Slew rate 50 ohm res. on HSSL, inline 1nF fil.onT1, AC cable on runway, 208VAC 60Hz	
Standard:	FCC15_B	

Voltage/Line	Frequency (MHz)	Measurement Detector	Measured Value (dBµV)	Correction Factors (dB)	Emission Level (dBµV)	Limit Type	Limit (dBµV)	Margin (dB)
AC 208V Line1A	0.196	AV	35.79	11.35	47.14	AV	53.78	**6.64**
AC 208V Line1A	0.294	AV	26.85	10.85	37.70	AV	50.42	**12.72**
AC 208V Line1A	0.397	AV	16.97	10.71	27.68	AV	47.92	**20.24**
AC 208V Line1A	0.490	AV	18.06	10.64	28.70	AV	46.17	**17.47**
AC 208V Line1A	2.315	AV	12.93	10.74	23.67	AV	46.00	**22.33**
AC 208V Line1A	3.860	AV	14.99	10.9	25.89	AV	46.00	**20.11**
AC 208V Line2A	0.196	AV	31.7	11.32	43.02	AV	53.78	**10.76**
AC 208V Line2A	0.294	AV	29.34	10.82	40.16	AV	50.41	**10.25**
AC 208V Line2A	0.392	AV	27.43	10.68	38.11	AV	48.03	**9.92**
AC 208V Line2A	0.490	AV	26.8	10.62	37.42	AV	46.17	**8.75**
AC 208V Line2A	0.772	AV	16.33	10.57	26.90	AV	46.00	**19.10**
AC 208V Line2A	3.861	AV	13.59	10.89	24.48	AV	46.00	**21.52**
AC 208V Line1A	0.196	QP	36.99	11.31	48.30	QP	63.79	**15.49**
AC 208V Line1A	0.294	QP	27.34	10.87	38.21	QP	60.41	**22.20**
AC 208V Line1A	0.397	QP	20.52	10.71	31.23	QP	57.92	**26.69**
AC 208V Line1A	0.490	QP	21.18	10.64	31.82	QP	56.17	**24.35**
AC 208V Line1A	2.315	QP	16.36	10.74	27.10	QP	56.00	**28.90**
AC 208V Line1A	3.862	QP	18.52	10.9	29.42	QP	56.00	**26.58**
AC 208V Line2A	0.196	QP	33.96	11.28	45.24	QP	63.77	**18.53**
AC 208V Line2A	0.294	QP	30.66	10.83	41.49	QP	60.42	**18.93**
AC 208V Line2A	0.392	QP	29.13	10.68	39.81	QP	58.03	**18.22**
AC 208V Line2A	0.490	QP	28.35	10.62	38.97	QP	56.17	**17.20**
AC 208V Line2A	0.773	QP	19.91	10.57	30.48	QP	56.00	**25.52**
AC 208V Line2A	3.862	QP	17.15	10.89	28.04	QP	56.00	**27.96**

The highest emission measured was 47.14 dBµV with average detector at 196 kHz on AC 208V Line1A. It has 6.64 dB margin to the FCC CFR47 part 15 class B limits.
The EUT is in compliance with FCC CFR47 Part 15 Class B requirements.

F.6. Observations

None

F.7. Sample Calculation

Correction Factor = LISN Correction Factor + Cable Loss
Emission Level = Measured Value + Correction Factor
Margin = Limit – Emission Level

F.8. Test Data & Photographs

The test data and photographs collected during this test appear following this page.

F.9. Tested By

This testing was conducted in accordance with the ISO 17025:1999 scope of accreditation, table 1; Quality Manual.

Name: Glen Moore
Function: EMC Manager

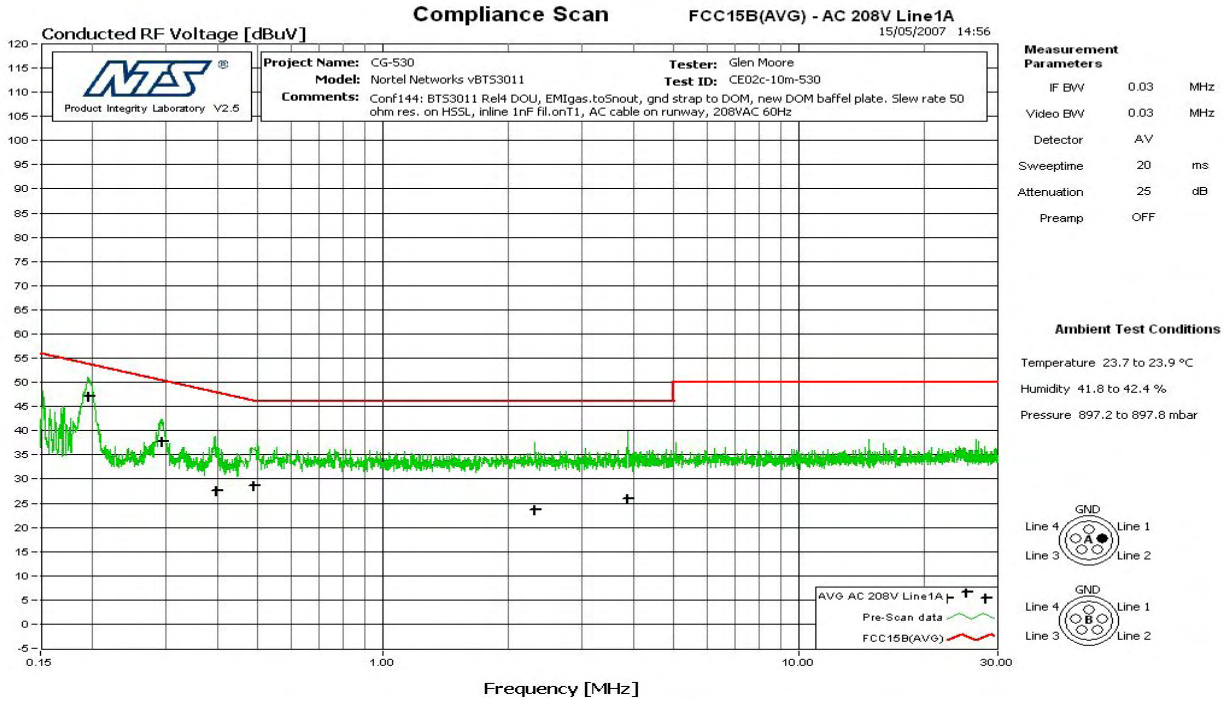


Figure 37: CE AC 208V – Line1 – 150 kHz – 30 MHz (Average Detector)

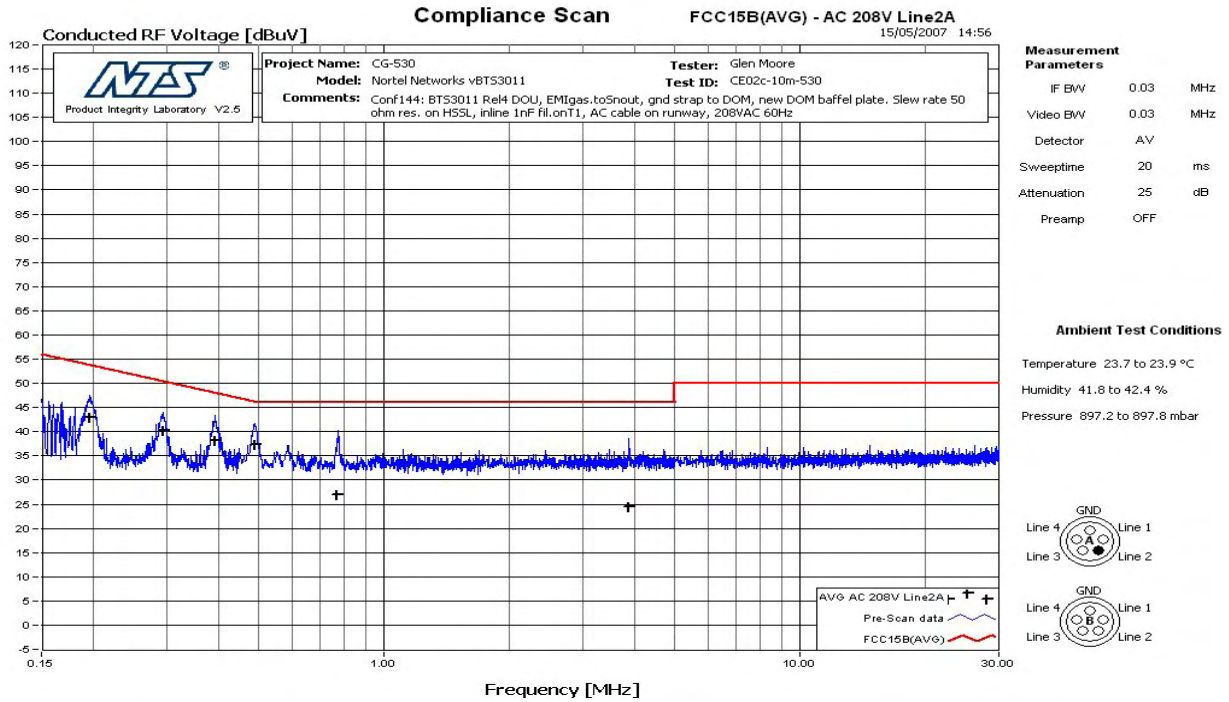


Figure 38: CE AC 208V – Line2 – 150 kHz – 30 MHz (Average Detector)

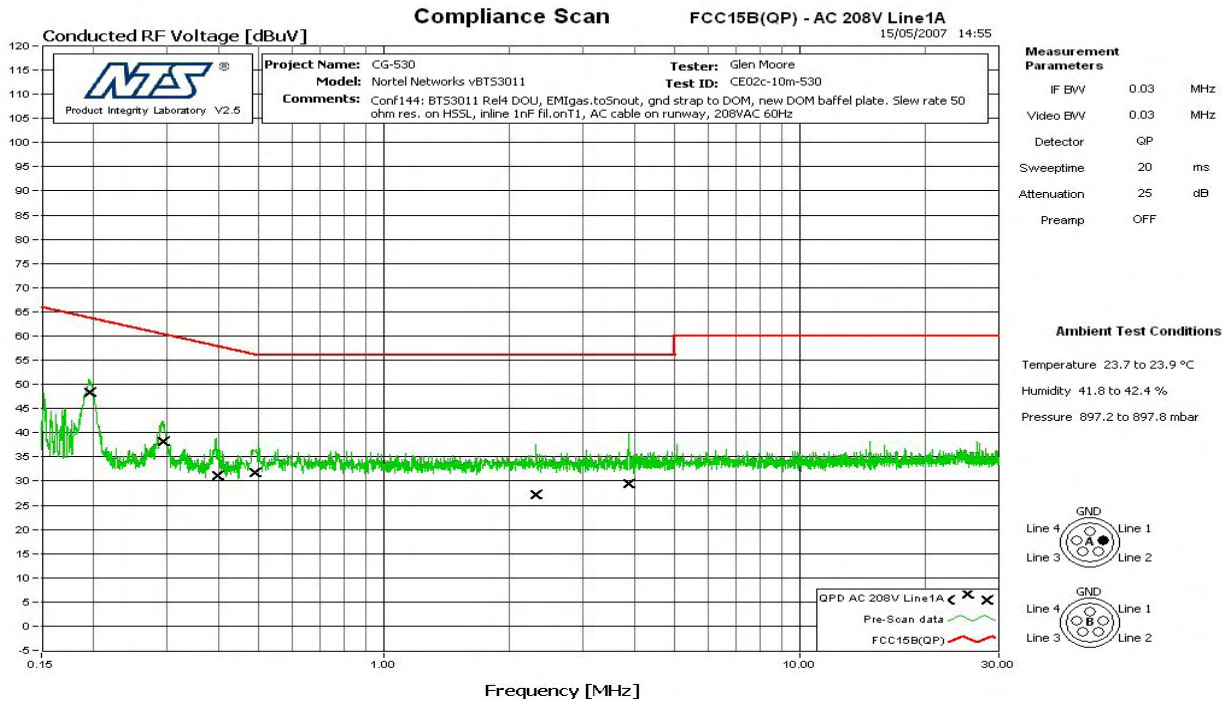


Figure 39: CE AC 208V – Line1 – 150 kHz – 30 MHz (Quasi-peak Detector)

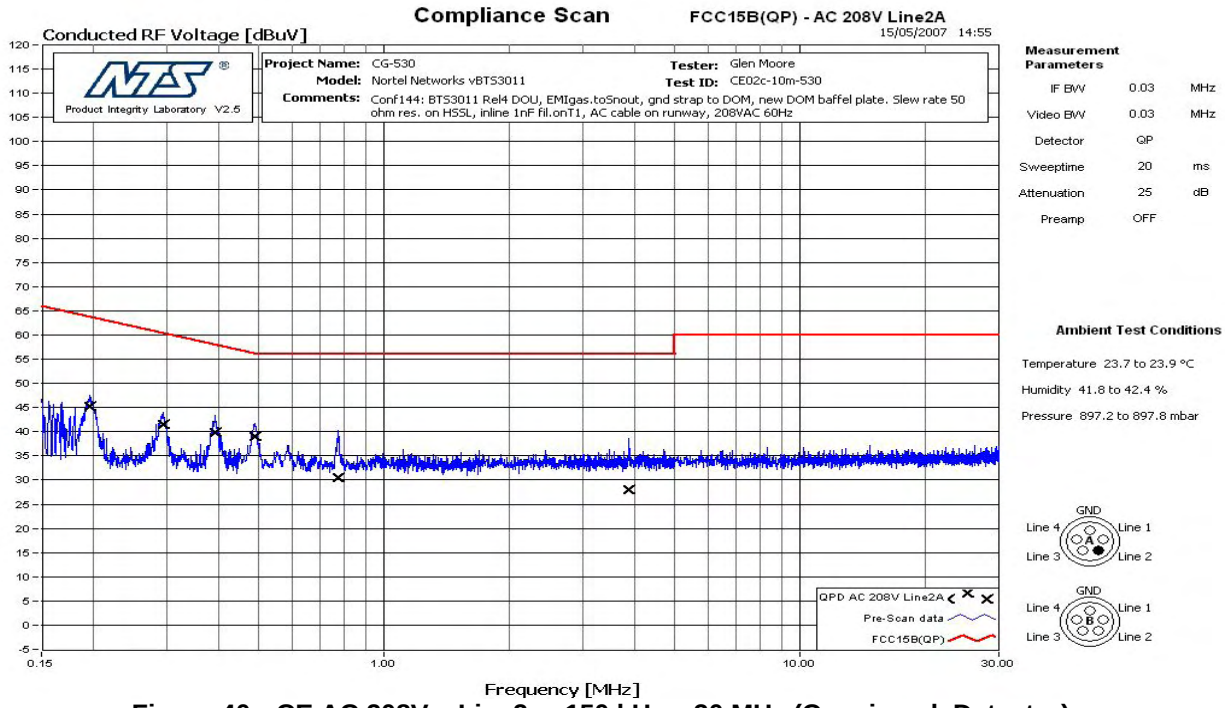


Figure 40: CE AC 208V – Line2 – 150 kHz – 30 MHz (Quasi-peak Detector)

APPENDIX G: TEST EQUIPMENTS LIST

G.1. Radiated Emissions 30 MHz – 1 GHz Measurement Equipment

Description	Manufacturer	Type/Model	Asset #	Cal Due	Cal Date
10m ANECHOIC CHAMBER					
Bilog Antenna	☐ Chase	CBL 6111B	CG0408	24AUG07	24AUG06
	☒ Chase	CBL 6112B	CG0314		
RF Cable	Suhner Sucoflex	Ferrite bead loaded cable	CG0398	13APR08	13APR06
CONTROL ROOM					
Test Receiver	Rohde & Schwarz	ESMI	CG0433/ CG0434	27FEB08	27FEB07
Mast Controller	EMCO	2090	CG0179	N/A	N/A
Multi Device Controller TT1 (Turntable)	EMCO	2090	CG0178	N/A	N/A
RF 10m East site Link				13APR08	13APR06
- Cable 1	Suhner Sucoflex	NA	CG0690		
- Cable 2	Suhner Sucoflex	NA	CG0634		
- Cable 3	Suhner Sucoflex	NA	CG0660		
- Cable 4	Suhner Sucoflex	NA	CG0661		
- Switch Matrix Controller	TDL	SMC-002	CG0175		
- Amplifier	Hewlett Packard	8447F	CG0177		

G.2. Radiated Emissions 1 GHz – 20 GHz Measurement Equipment

Description	Manufacturer	Type/Model	Asset #	Cal Due	Cal Date
10m ANECHOIC CHAMBER					
Horn Antenna (Rx) 1 GHz – 18 GHz	☒ EMCO	3115	CG0103	30AUG07	30AUG06
Standard Gain Horn (Rx) 18 GHz – 26.5 GHz	☒ EMCO	3160-09	CG0075	N/A	27NOV01
Standard Gain Horn (Rx) 26.5 GHz – 40 GHz	☐ EMCO	3160-10	CG0076	N/A	27NOV01
High pass filter f >1000 MHz	☒ MicroTronics	HPM14576	CG0963	10AUG08	10AUG06
Band Reject Filter 2400 MHz < f < 2500 MHz	☐ MicroTronics	BRM50702	CG0933	02MAR08	02MAR06
Band Reject Filter 5725 MHz < f < 5875 MHz	☐ MicroTronics	BRC50705	CG0904	02MAR08	02MAR06
High pass filter f > 2800 MHz	☐ MicroTronics	HPM50111	CG0964	08JAN08	08JAN06
High pass filter f > 6400 MHz	☐ MicroTronics	HPM50112	CG0965	09JAN08	09JAN06
LNA 1 GHz < f < 18 GHz	☒ Miteq	JSD00121	CG0317	10AUG08	10AUG06
LNA 18 GHz < f < 26.5 GHz	☒ Miteq	JSD00119	CG0482	19JAN08	19JAN07
LNA 26.5 GHz < f < 40 GHz	☐ Miteq	JSD00120	CG0483	19JAN08	19JAN07
Cable from Antenna to LNA	Sucoflex 104	2422774A	CG0686	10AUG08	10AUG06
Cable from LNA's to SA	Sucoflex 100	115757-4	CG0686	10AUG08	10AUG06
Spectrum Analyzer 9 kHz – 40 GHz	Rohde & Schwarz	FSEK-20	CG0118	15JUN07	09MAY06
Spectrum Analyzer 9Khz-40 gHz	Rohde & Schwarz	ESMI	CG0109	13SEP07	13SEP07
LNA DC Power Supply	Xantrex	LXO 30-2	CG0493	NA	NA
30 dB DC-18 GHz attenuator	Weinschel	66-30-34	CG0752	NA	NA
HPIB Extender	HP	37204	CG0110	N/A	N/A
CONTROL ROOM					
PC with FSEK Manual ctrl S/W	N/A	N/A	N/A	N/A	N/A
HPIB Extender	HP	37204	CG0181	N/A	N/A
Mast Controller	EMCO	2090	CG0179	N/A	N/A
Multi Device Controller TT1	EMCO	2090	CG0178	N/A	N/A

G.3. Conducted Emissions 150 kHz – 30 MHz Measurement Equipment

Descriptions		Manufacturer	Type/Model	Serial #	Cal Due	Cal Date
10m ANECHOIC CHAMBER						
A LISN Link					18JAN08	18JAN06
-LISN A Switch	☒ A	NA	NA	CG0676		
-Cable Switch to Limiter	☒ A	NA	NA	CG0663		
- Cable LISN to Switch	☒ A1	Sucoflex	NA	CG0667	18JAN08	18JAN06
	☐ A2	Sucoflex	NA	CG0668	18JAN08	18JAN06
	☐ A3	Sucoflex	NA	CG0669	18JAN08	18JAN06
	☒ A4	Sucoflex	NA	CG0671	18JAN08	18JAN06
- Table Top LISN	☒ TT	EMCO	3825	CG0367	05JAN08	05JAN06
- LISN	☐ A1	EMCO	38100/1SPEC	CG0465	26JAN08	26JAN06
- LISN	☐ A2	EMCO	38100/1SPEC	CG0282	26JAN08	26JAN06
- LISN	☐ A3	EMCO	38100/1SPEC	CG0367	26JAN08	26JAN06
- LISN	☐ A4	EMCO	38100/1SPEC	CG0279	26JAN08	26JAN06
CONTROL ROOM						
Test Receiver		Rohde & Schwarz	ESMI	CG0433/ CG0434	27FEB08	27FEB07
Mast Controller		EMCO	2090	CG0179		
Cable Transient limiter to Receiver		NA	NA	CG0665	18JAN08	18JAN06
A LISN Link					18JAN08	18JAN06
-LISN A Limiter	☒ A	NA	NA	CG0677		
-Cable to Limiter	☒ A	NA	NA	CG0663		

APPENDIX H: TEST PLAN

N/A

END OF DOCUMENT