



Report No. 278217-1

Test Report

Product	DECT Base in Video Telephone
Name and address of the applicant	Avaya Inc. 4655 Great America Pkwy, Santa Clara, CA 95054 USA
Name and address of the manufacturer	Same as above
Model	H175
Rating	120V AC (Mains)
Trademark	Avaya
Serial number	14WZ493707SD
Additional information	DECT 6.0, Ethernet
Tested according to	Parts of FCC Part 15, subpart D Isochronous UPCS Device, 1920 – 1930 MHz Parts of Industry Canada RSS 213, Issue 3 2 GHz License-exempt Personal Communications Service Devices (LE-PCS)
Order number	278217
Tested in period	2015.03.03 to 2015.03.04
Issue date	2015.04.28
Name and address of the testing laboratory	 Instituttveien 6 Kjeller, Norway
	FCC No: 994405 IC OATS: 2040D-1 TEL: (+47) 22 96 03 30 FAX: (+47) 22 96 05 50
	 
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1 INFORMATION

1.1 Tested Item

Name :	Avaya
Model name :	H175
FCC ID :	TYM-H175
Industry Canada ID :	3794H-H175
Serial number :	14WZ493707SD
Hardware identity and/or version:	Gen 2.1
Software identity and/or version :	Version 2200
Tested to IC Radio Standard (RSS) :	RSS-213 Issue 3, RSS-GEN Issue 4
Test Site IC Reg. Number :	IC 2040D-1
Frequency Range :	1921.536 – 1928.448 MHz
Number of Channels :	5 RF Channels, 5x12 = 60 TDMA Duplex Channels
Type of Modulation :	Digital (Gaussian Frequency Shift Keying)
Conducted Output Power :	100 mW (Peak)
Antenna Connector :	None
Number of Antennas :	2
Antenna Diversity Supported :	Yes
Power Supply :	AC Adaptor Model: ADP-30BR B (Input: 100-240V AC, 50-60Hz; Output: 48V DC, 0.625A)
Interface :	Ethernet

1.2 Description of Tested Device

The EUT is a DECT Base Station and is a responding device as described in ANSI C63.17 and is designed to operate together with a DECT Handset, which is the initiating device.

1.3 Exposure Evaluation

The EUT is designed to be used on a tabletop and the user manual contains text that it shall be mounted with a separation distance of at least 20cm from any persons. For the purposes of exposure evaluation this EUT is a mobile or fixed device. MPE Calculation at 20cm satisfying FCC requirements is submitted as a separate document.

The EUT is exempted from RF Exposure Evaluation to Industry Canada requirements since the output power complies with the power levels of section 2.5.2 of RSS-102 Issue 5.

1.4 Test Environment

Temperature:	20.1 – 20.6 °C
Relative humidity:	32 – 42 %
Normal test voltage:	120 V AC

The values are the limit registered during the test period.

1.5 Test Engineer(s)

Frode Sveinsen

1.6 Test Equipment

See list of test equipment in clause 6.

1.7 Other Comments

This test report cover only Antenna Gain Test. All other tests are covered by Nemko Test Report no. 220131-4 (FCC ID: Y82-SC14S).

The tested EUT uses the already certified Dialog DECT Module SC14SPNODE, the only difference is that this EUT uses two new PCB antennas and does not use the single integrated antenna on the Dialog Module.

This test report includes tests of Antenna Gain for both antennas. All tests were performed radiated.

The module SC14SPNODE was originally tested to comply with ANSI C63.17-2006, the current version of FCC 15D and RSS-213 refers to the 2013 version of C63.17. The changes in the 2013 version of C63.17 are mainly changes that are necessary since the Upper Limit has been removed from FCC 15D and RSS-213. Additionally the required minimum number of channels to use Least Interfered Channel Procedure has been reduced to 20, but this change has no impact for EUTs that already were allowed to use the LIC procedure. There is no reason why EUTs that fulfill the 2006 version should not also fulfill the 2013 version.

2 TEST REPORT SUMMARY

2.1 General

All measurements are traceable to national standards.

The tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with FCC CFR47 Part 15D for Isochronous UPCS Devices and Industry Canada RSS-213 Issue 3 / RSS-GEN Issue 4 / RSP-100 Issue 10.

All tests were conducted in accordance with ANSI C63.4-2009/2014 and ANSI C63.17-2013. Antenna Gain tests were made in a 3m fully-anechoic chamber.

A description of the test facility is on file with the FCC and Industry Canada.

<input checked="" type="checkbox"/> New Submission	<input checked="" type="checkbox"/> Production Unit
<input type="checkbox"/> Class II Permissive Change	<input type="checkbox"/> Pre-production Unit
PUB Equipment Code	<input type="checkbox"/> Family Listing



THIS TEST REPORT APPLIES ONLY TO THE ITEM(S) AND CONFIGURATIONS TESTED.

Deviations from, additions to, or exclusions from the test specifications are described in "Summary of Test Data".

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2.2 Test Summary

Name of test	FCC CFR 47 Paragraph #	IC RSS-213 Paragraph #	Verdict
Digital Modulation Techniques	15.319(b)	5.1	Complies
Labeling requirements	15.19(a)(3)	RSP-100 3.1	Complies
Antenna Requirement	15.317, 15.203	RSS-GEN 8.3	Complies
Channel Frequencies	15.303	5.1	Complies
Automatic discontinuation of transmission	15.319(f)	5.2 (4)	Complies
Output Power and Antenna Gain	15.319(c)(e), 15.31(e)	5.6 RSS-GEN 8.3	Complies

3 TEST RESULTS

3.1 Digital Modulation Techniques

The EUT uses Multi Carrier / Time Division Multiple Access / Time Division Duplex and Digital GFSK modulation. For further details see the operational description provided by the applicant.

Requirement, FCC 15.319(b):

All transmissions must use only digital modulation techniques.

3.2 Channel Frequencies

UPCS CHANNEL	FREQUENCY (MHz)
Upper Band Edge	1930.000
0 (Highest)	1928.448
1	1926.720
2	1924.992
3	1923.264
4 (Lowest)	1921.536
Lower Band Edge	1920.000

Requirement: FCC 15.303

Within 1920 -1930 MHz band for isochronous devices.

3.3 Antenna Requirement

Does the EUT have detachable antenna(s)?	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
If detachable, is the antenna connector(s) non-standard?	<input type="checkbox"/> YES	<input type="checkbox"/> NO
The tested equipment has only integral antennas. The conducted tests were performed on a sample with a temporary antenna connector.		

Requirement: FCC 15.203, 15.204, 15.317.

3.4 Peak Power Output

Test Method:

ANSI C63.17, clause 6.1.2.

Test Results: Complies

Measurement Data:

Maximum Conducted Output Power

Channel No.	Frequency (MHz)	Maximum Conducted Output Power (dBm)	Maximum Radiated Output Power (dBm)	Maximum Antenna Gain (dBi)
4	1921.536	20.0	22.7	2.7
2	1924.992	20.0	22.2	2.2
0	1928.448	20.0	21.6	1.6

Substitution:

Frequency MHz	Measured value dBm	Subst. Gen. (incl. corr.) dBm	Attenuator and Cable dB	Gain Subst. Antenna dB	Result dBm
1921.536	21.1	28.7	-14.2	8.3	22.7
1924.992	20.6	28.7	-14.2	8.3	22.2
1928.448	20.0	28.7	-14.2	8.3	21.6

Result = Subst.Gen. + Attenuator + Cable + Antenna Gain

Conducted power values are from Nemko Test Report No 220131-4. Limits calculation is also based on test report no. 220131-4.

Limit:

Conducted: $100 \mu\text{W} \times \text{SQRT}(B)$ where B is the measured Emission Bandwidth in Hz

FCC 15.319(c)(e): 20.8 dBm (120 mW)

RSS-213, Issue 2: 20.4 dBm (110 mW)

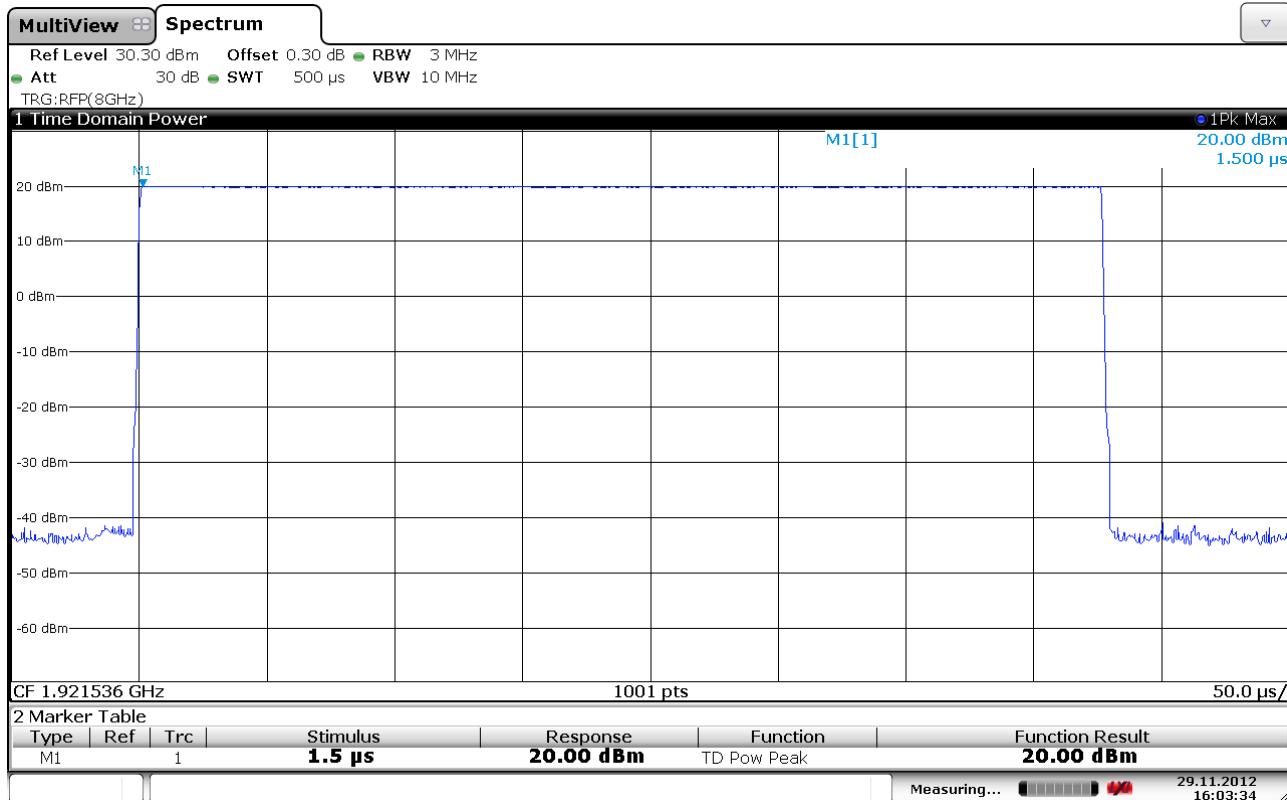
The antenna gain is below 3 dBi, no reduction in transmit power is necessary.

Requirements, FCC 15.319(c)(e); RSS-213, Issue 3; RSS-GEN, Issue 4

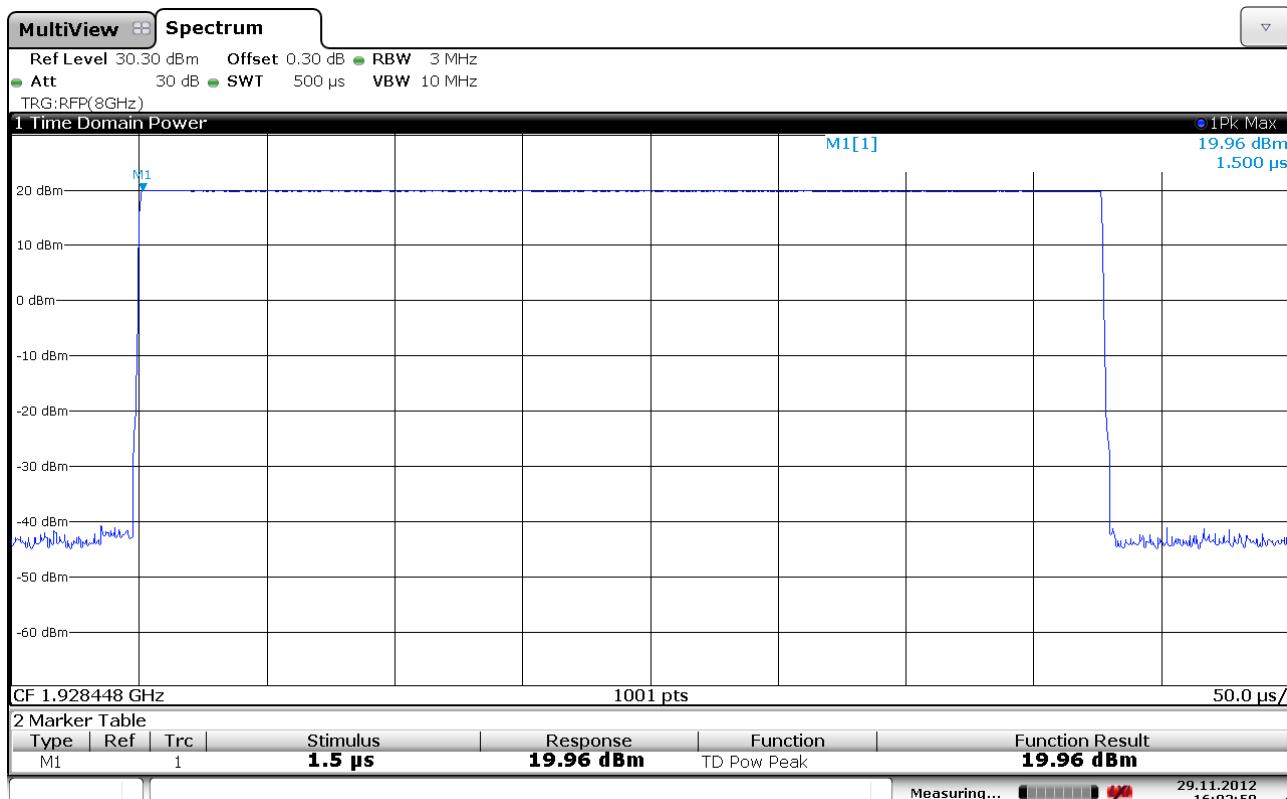
Peak transmit power shall not exceed 100 microwatts multiplied by the square root of the emission bandwidth in Hertz.

The peak transmit power shall be reduced by the amount in decibels that the maximum directional gain of the antenna exceeds 3 dBi.

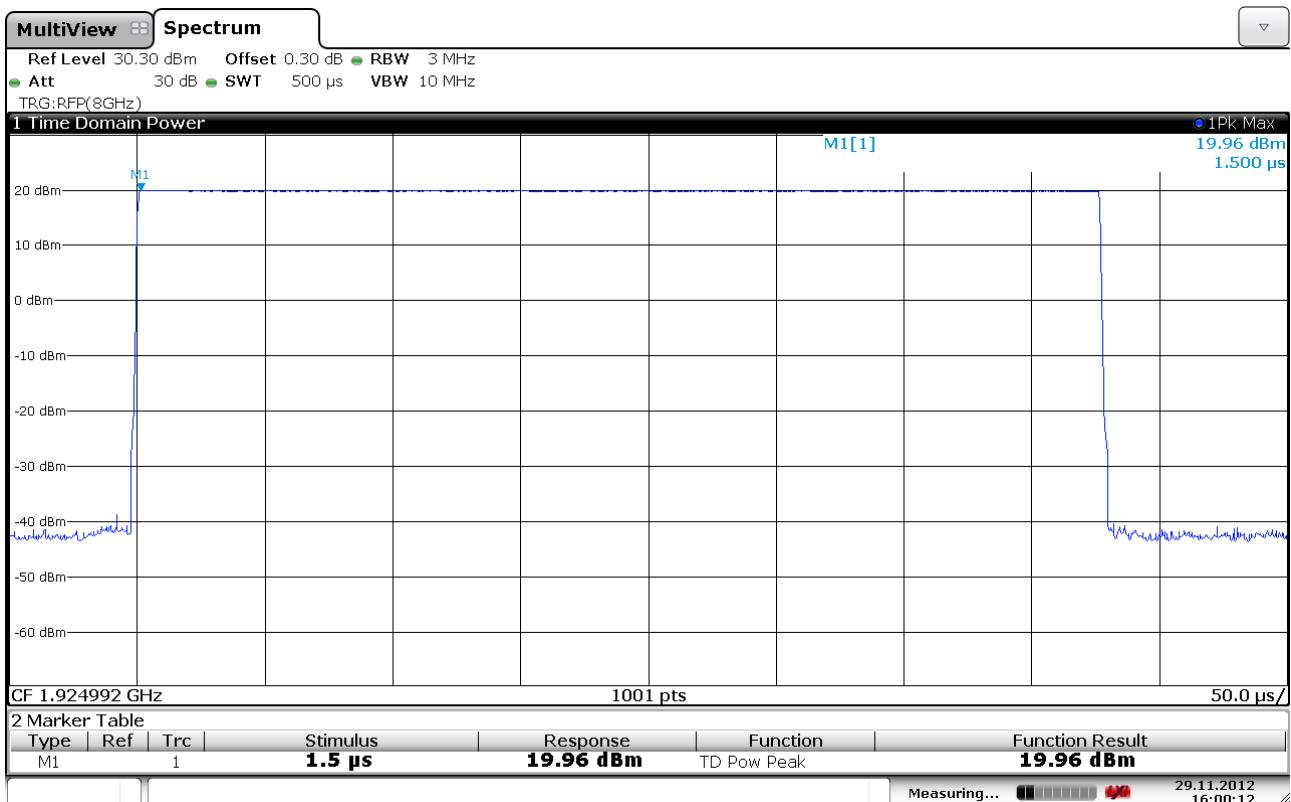
Conducted Peak Output Power



Lower Channel

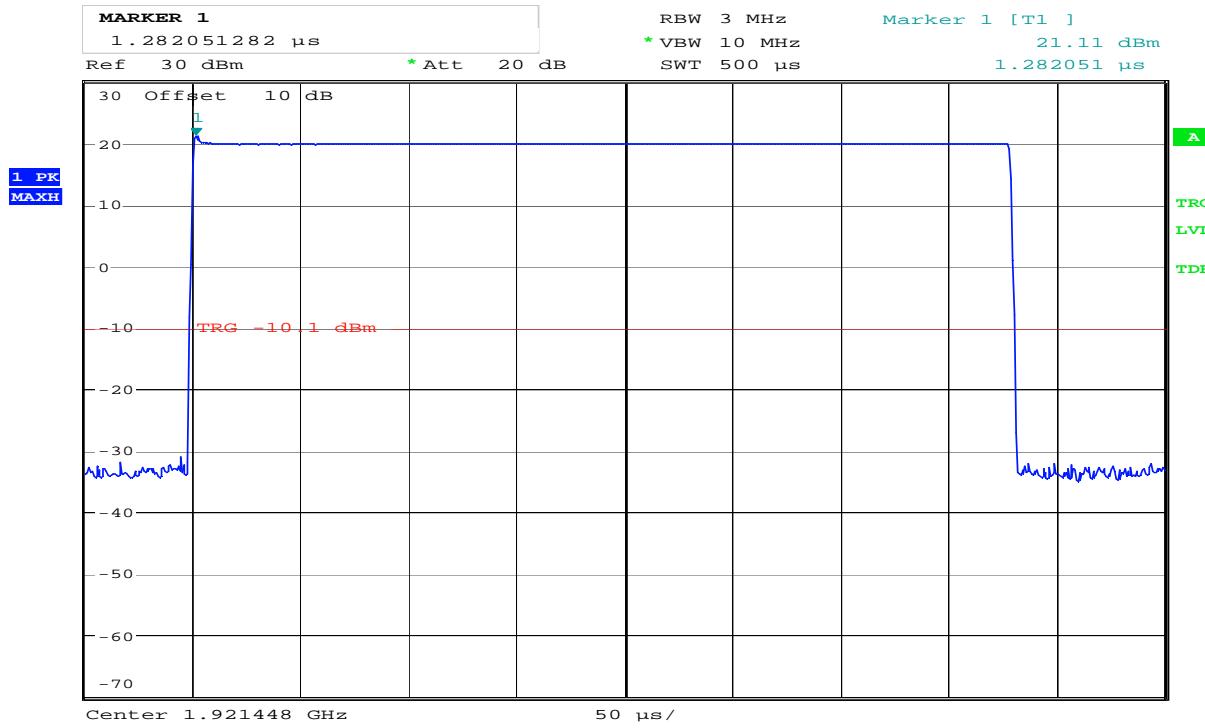


Upper Channel



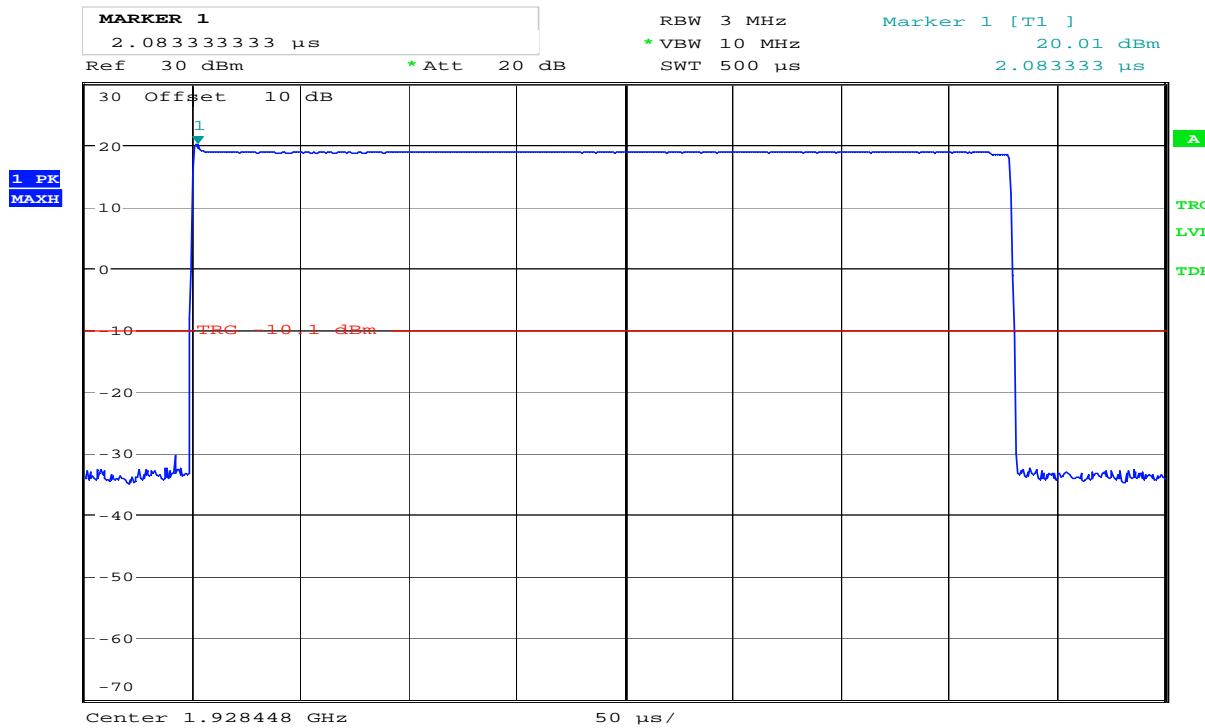
Middle Channel

Radiated Peak Output Power



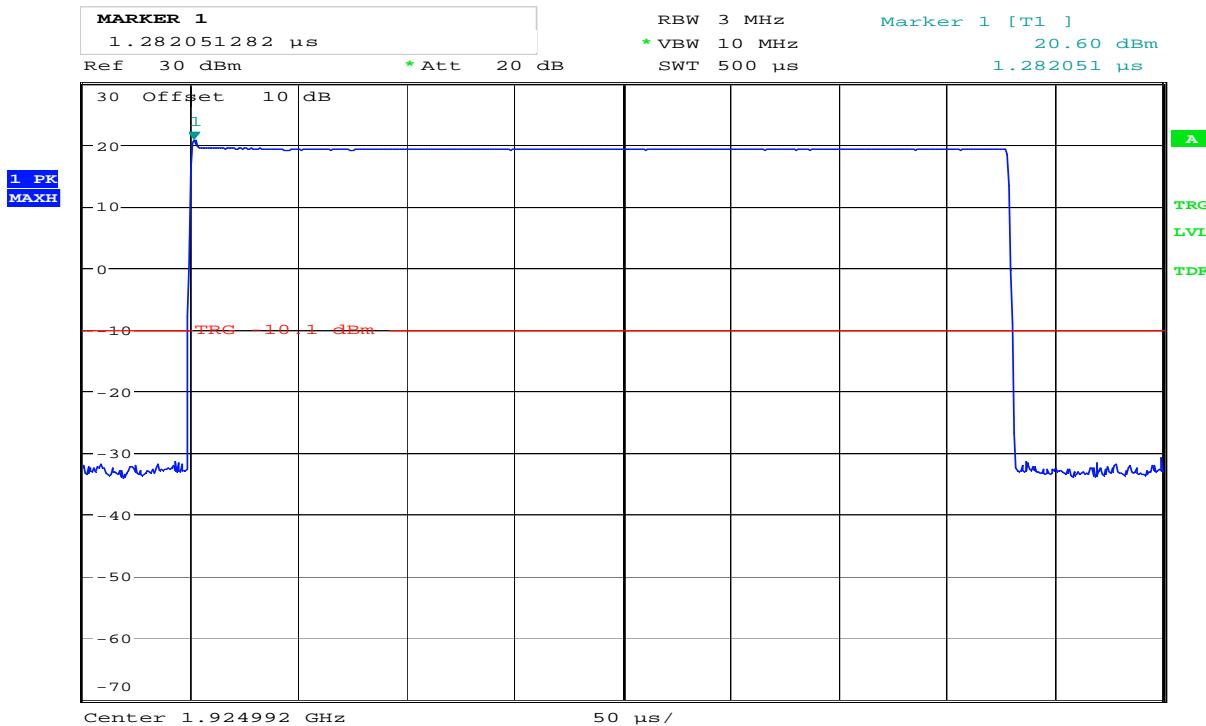
Date: 4.MAR.2015 13:32:43

Lower Channel (Max: Ant 2, HP)



Date: 4.MAR.2015 13:35:50

Upper Channel (Max: Ant 2, HP)



Date: 4.MAR.2015 13:29:31

Middle Channel (Max: Ant 2, HP)

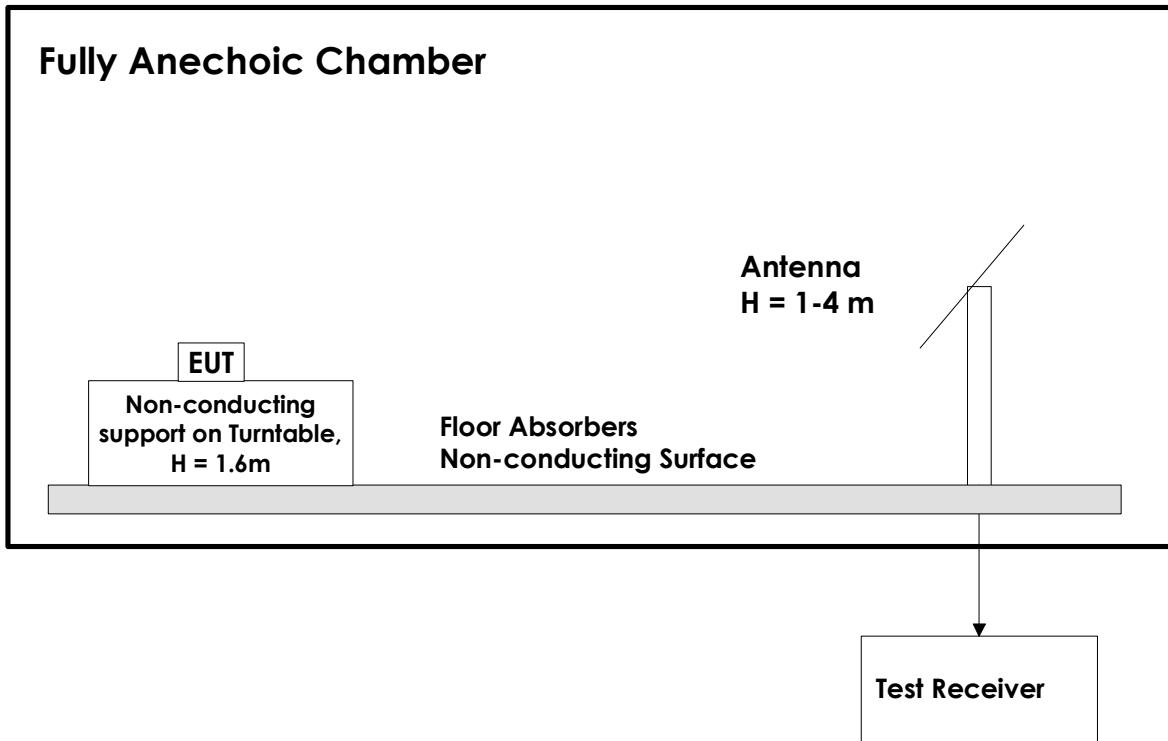
4 Measurement Uncertainty

Measurement Uncertainty Values		
Test Item	Uncertainty	
Output Power	±0.5 dB	
Spurious Emissions, Radiated	< 1 GHz	±2.5 dB
	> 1 GHz	±2.2 dB
Temperature Uncertainty		±1 °C

All uncertainty values are expanded standard uncertainty to give a confidence level of 95%, based on coverage factor k=2

5 Test Setups

5.1 Radiated Emissions Test, Fully Anechoic Chamber



Test Set-Up 7

This test setup is used for measuring radiated output power. The measurements are performed in a 3m Fully Anechoic Chamber with a Spectrum Analyzer and Horn Antenna, a preamplifier may be used after the antenna. The measuring distance is 3m.

6 Test Equipment Used

To facilitate inclusion on each page of the test equipment used for related tests, each item of test equipment and ancillaries are identified (numbered) by the Testhouse.

No.	Model number	Description	Manufacturer	Ref. no.	Cal. date	Cal. Due
1	FSU26	Spectrum analyser	Rohde & Schwarz	LR 1504	2013.11	2015.11
2	Model 7200	Signal generator	Gigatronics	LR 1188	2014.11	2016.11
3	JS4	Preamplifier	Miteq	LR 1552	2014.10	2015.10
4	6820.17.A	Attenuator	Suhner	LR 1135		
5	3115 Wideband Horn	Substitution antenna	EMCO	LR 1226	2013.12	2018.12
6	3115 Wideband Horn	Measuring antenna	EMCO	LR 1330	2010.08	2015.08