FCC / IC Test Report

FOR:

Philips Respironics Inc.

Philips Dream Station

Continuous Airway Pressure Device with Bluetooth Radio (BDR/EDR)
in combination with
Dream Station Cellular Modem (CDMA)

FCC ID: THO1116426
IC ID: 3234B-1116426, Model: 1116426
co-location with
Gemalto CDMA module FCC ID: QIPPCS3

47 CFR Part 15.247
RSS-210 Issue 8 & RSS-Gen Issue 4

TEST REPORT #: EMC_PHIL4-00-14001_15.247_BT_EDR_CDMA_Module
DATE: 2015-06-12

FCC accredited

IC recognized
#3462B

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

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1 Assessment

Compliance of the combination of the below listed devices (i.e. of the co-location of the modular transmitters contained in those devices, respectively) was evaluated against the applicable criteria specified in FCC rules Parts 15.247 (with 15.205/15.209) of Title 47 of the Code of Federal Regulations and the relevant IC standard RSS-210 issue 8, Annex 8 (and RSS-GEN issue 4).
No deviations were ascertained.

Company	Description	Model #
Philips Respironics Inc.	Continuous Airway Pressure Device with Bluetooth modular radio (BDR/EDR)	700x110 (US) 700x120 (Canada)
Philips Respironics Inc.	Cellular Modem Accessory with CDMA modular radio	100600C (US) 100610C (Canada)

Responsible for Testing Laboratory:

Date	Section	Name	Signature
2015-06-12	Compliance	Franz Engert (Compliance Manager)	Digitally signed by Franz Engert DN: cn=Franz Engert, c=US, o=CETECOM, ou=Complience, email=franz.engert@cetecom.com Date: 2015.06.16 16:59:33 -07'00'

Responsible for the Report:

Date	Section	Name	Signature
2015-06-12	Compliance	Yu-Chien Ho (EMC Engineer)	Yu-Chien Ho Digitally signed by Yu-Chien Ho DN: cn=Yu-Chien Ho, c=US, o=Cetecom Inc., ou=Compliance, email=yu-chien.ho@cetecom.com Date: 2015.06.16 13:14:48 -07'00'

2 Administrative Data

2.1 Identification of the Testing Laboratory Issuing the Test Report

Company Name:	CETECOM Inc.
Department:	Compliance
Address:	411 Dixon Landing Road Milpitas, CA 95035 U.S.A.
Telephone:	+1 (408) 586 6200
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Compliance Manager:	Franz Engert
Responsible Project Leader:	Yu-Chien Ho

2.2 Identification of the Client

Client Firm/Name:	Philips Respironics Inc.
Street Address:	1740 Golden Mile Highway
City/Zip Code	Monroeville, PA 15146
Country	USA
Contact Person:	Jonathan Kurtz
Phone No.	724-387-7578
e-mail:	Jonathan.Kurtz@Philips.com

2.3 Identification of the Manufacturer

Manufacturer's Name:	Respironics Inc. (Philips Respironics)
Manufacturers Address:	1001 Murry Ridge Lane
City/Zip Code	Murrysville, PA 15668
Country	USA

3 Equipment under Test (EUT)

3.1 Specification of the Equipment under Test

Marketing Name / Model No:	CPAP Device: 700x110 (US) & 700x120 (Canada) Cellular Modem: 100600C (US) & 100610C (Canada)
HW Version :	00
FCC-ID :	THO1116426
IC-ID:	3234B-1116426 / M/N: 1116426
Product Description:	Bluetooth modular radio transmitter (BDR/EDR and LE) incorporated in the Continuous Airway Pressure Device (Philips Dream Station); **Note: subject to this test / test report is the co-location of the BDR/EDR (FHS) function of Bluetooth modular radio located on the mother board of the host device (the Philips Dream Station) with the CDMA modular transmitter with FCC ID: QIPPCS3 as incorporated in the Dream Station Cellular Modem Accessory (plugged in to the Dream Station);**
Frequency Range / number of channels:	Bluetooth BDR/EDR: Nominal band: 2400 – 2483.5; Center to center: 2402 (Ch.0) – 2480 (Ch.78), 79 channels CDMA: 850 MHz: 825.03-848.97; 799 channels 1900 MHz: 1850.05-1909.95; 1199 channels
Type(s) of Modulation:	Bluetooth: GFSK, π /4 DQPSK, 8DPSK CDMA: CDMA
Antenna Information as declared:	Bluetooth: internal, 1.5 dBi CDMA: internal, 2dBi
Max. Output Powers:	Bluetooth: 5.13 dBm, peak, conducted CDMA: 25dBm, avg, conducted
Power Supply/ Rated Operating Voltage Range:	host (Dream Station): AC/DC Adapter; Input:100-240V~50-60 Hz, 2.0-1.0 A; Output: 12 V, 6.67 A; the Bluetooth chip is supplied by 3.3V acc. to documentation;
operating temperature range	5- 35°C (acc. host manual)
Prototype / Production unit	Production
Other Radios included in the device:	none (the Bluetooth LE function is part of the functional scope of the Bluetooth radio)

3.2 Identification of the Equipment Under Test (EUT)

EUT #	Serial Number	HW Version	SW Version	Notes/Comments
1	JPP251765ADA8	00	B0.0.0.2061	Radiated Sample
2	SK721888	0	0	Radiated Sample

3.3 Identification of Accessory equipment

AE #	Type	Manufacturer	Model	Serial Number
1	Humidifier	Philips Respironics Inc.	DSXH	HPP10019330E7
2	AC/DC Adapter	Delta Electronics Inc.	MDS-080AAS12 A	70HW512001W

3.4 Environmental conditions during Test:

The following environmental conditions were maintained during the course of testing:
Ambient Temperature: 20-25^{o}C
Relative humidity: 40-60%

3.5 Dates of Testing:

2015/03/09 – 2015/03/23

3.6 Testing Notes:

The EUT was set to the required test mode (hopping, non-hopping, channel, modulation option) by special test SW (EZRasp Communicator) which will not be available to end-users in production samples. Dream Station Cellular Modem was set to idle mode during testing.

3.7 Test mode of operation with multiple modulations:

Mode	Data rate (Mbps)	Modulation scheme
Bluetooth 2.0/EDR	1.0 2.0 3.0	**DH5** **2-DH5** **3-DH5**

4 Subject of Investigation

The objective of the evaluation documented in this report was to establish compliance of the EUT as described in section 3 with the relevant requirements specified in FCC rules Part 15.247 of Title 47 of the Code of Federal Regulations and Radio Standard Specification RSS-210 Issue 8, Annex 8 of Industry Canada.

This test report is to support a request for new equipment authorization (limited single modular acc. to Part 15.212) under the **FCC ID THO1116426 and the IC certification number 3234B-1116426 / model no. 1116426.**

Specific subject to this test / test report is the co-location of the BDR/EDR (FHS) function of Bluetooth modular radio located on the mother board of the host device (the Philips Dream Station) with the CDMA modular transmitter with FCC ID: QIPPCS3 as incorporated in the Dream Station Cellular Modem Accessory (plugged in to the Dream Station);

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

Testing procedures are based on FCC Public Notice "DA 00-705: March 30, 2000" and ANSI C63.10:2013 for FHSS systems.

Pre-evaluation has shown the highest output power when transmitting with operation mode 2-DH5 (π/4DQPSK with 5 slot package) which is therefore the mode for unwanted emission measurements.

The tests were performed with the EUT transmitter sets to low, mid and high channels where required. For radiated measurements, all data in this report shows the worst case between horizontal and vertical antenna polarizations and for all orientations of the EUT.

5 Summary of Measurement Results

Test Specification	Test Case	Temperature and Voltage Conditions	Mode	Pass	Fail	NA	NP	Result
§15.247(a)(1) RSS-210 A8.1(b)	Carrier Frequency Separation	Nominal	-	☐	☐	☐	■	Note 1
§15.247(a)(1) RSS-210 A8.1(d)	Number of Hopping Channels	Nominal	-	☐	☐	☐	■	Note 1
§15.247(a)(1)(iii) RSS-210 A8.3(1)	Time of occupancy	Nominal	-	☐	☐	☐	■	Note 1
§15.247(a)(1) RSS-210 A8.1(a)	Spectrum Bandwidth	Nominal	-	☐	☐	☐	■	Note 1
§15.247(b)(1) RSS-210 A8.4(2)	Maximum Peak Conducted Output Power	Nominal	-	☐	☐	☐	■	Note 1
§15.247(d) RSS-210 A8.5	Band edge compliance-	Nominal	-	☐	☐	☐	■	Note 1
§15.247(d) §15.209 (a) RSS-210 A8.5 RSS-Gen 6.13	TX Spurious emissions- Radiated	Nominal	BT EDR Tx	■	☐	☐	☐	Complies
§15.207(a) RSS-Gen 8.8	AC Conducted Emissions <30MHz	Nominal	-	☐	☐	☐	■	Note 1

NA= Not Applicable; NP= Not Performed.
Note 1: Not deemed necessary for co-location compliance verification.

6 Measurements

6.1 Radiated Measurement Procedure

Ref: ANSI C63.10 (2013)

Section 5.4: Measurements around the EUT

Measurements shall be made at a test site that incorporates a turntable allowing EUT rotation of 0° through 360°, except where the EUT is so large that a suitable turntable is not readily available. A remotely controlled turntable shall be installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission frequency. Continuous azimuth searches shall be made. The maximum field strength at the frequency being measured shall be reported in the test report.32 See ANSI C63.4 for details of the test site, turntable, and antenna positioner. Where a continuous azimuth search cannot be made, as is the case for example where the EUT is so large that a suitable turntable is not readily available, frequency scans of the EUT field strength with both polarizations of the measuring antenna shall be made, starting with a minimum of 16 azimuth angles around the EUT, nominally spaced by 22.5°, in characterizing the EUT radio-noise profile. If directional EUT radiation patterns are suspected, especially above 1 GHz then additional and smaller azimuth angles shall be examined.

Section 5.3.2: Test distance for frequencies below 30 MHz

Radiated emissions limits are usually defined at a specific distance from the EUT. Where possible, measurements shall be made at the distance specified in the limits. This might not be possible in all cases, however, due to the physical limitations of the test facility, physical access problems at the required distance (especially for measurements that must be made in situ or on-site), or levels of ambient noise or other radiated signals present at the time and location where measurements are made. See 6.4.3 for more information about antenna selection, location, and test distance. If measurements cannot practically be made at the EUT limit distance, then they may be made at a different distance (usually closer) and extrapolated to the limit distance using one of the procedures described in 6.4.4, 6.4.5, or 7.7, depending on the EUT source and size.31 The test report shall specify the extrapolation method used to determine compliance of the EUT.

Section 5.3.3: Test distance for frequencies at or above 30 MHz

Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment (see 4.3.4). Measurements shall not be performed at a distance greater than 30 m for frequencies above 30 MHz, unless it can be further demonstrated that measurements at a distance of 30 m or less are impractical. Measurements from 18 GHz to 40 GHz are typically made at distances significantly less than 3 m from the EUT. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade of distance (inverse of linear distance for field-strength measurements or inverse of linear distance-squared for power-density measurements).

ANSI C63.10 (2013)

Section 6.6.4.2: Exploratory radiated emissions measurements

Exploratory radiated measurements shall be performed at the measurement distance or at a closer distance than that specified for compliance to determine the emission characteristics of the EUT and, if applicable, the EUT configuration that produces the maximum level of emissions. The frequencies of maximum emission may be determined by manually positioning the antenna close to the EUT, and then moving the antenna over all sides of the EUT while observing a spectral display. It is advantageous to have prior knowledge of the frequencies of emissions, although this may be determined from such a near-field scan. The near-field scan shall only be used to determine the frequency but not the amplitude of the emissions. Where exploratory measurements are not adequate to determine the worst-case operating modes and are used only to identify the frequencies of the highest emissions, additional preliminary tests can be required.

Preliminary tests shall be performed following the procedures in 6.3 on a site meeting the requirements of 5.2. For emissions from the EUT, the maximum level shall be determined by rotating the EUT and its antenna through 0° to 360°. For each mode of operation required to be tested, the frequency spectrum (based on findings from exploratory measurements) shall be monitored.

Section 6.6.4.3: Final radiated emissions measurements

The final measurements are performed on a site meeting the requirements of 5.2. Using the orientation and equipment arrangement of the EUT based on the measurement results found during the preliminary (exploratory) measurements per 6.6.4.2, the EUT arrangement, appropriate modulation, and modes of operation that produce the emissions that have the highest amplitude relative to the limit shall be selected for the final measurement. The final measurement shall follow all the procedures in 6.3 with the EUT operating on frequencies per 5.6. For each mode selected, record the frequency and amplitude of the highest fundamental emission (if applicable), as well as the frequency and amplitude of the six highest spurious emissions relative to the limit. Emissions more than 20 dB below the limit do not need to be reported.

Measurements are performed with the EUT rotated from 0° to 360°; the antenna height scanned in accordance with 6.6.3.1, 6.6.3.2, or 6.6.3.3, as appropriate; and the antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations. Variations in cable or wire placement shall be explored to maximize the measured emissions.

NOTES

1— Where limits are specified by agencies for both average and peak (or quasi-peak) detection, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement.

2—Use of waveguide and flexible waveguide may be necessary at frequencies above 10 GHz to achieve usable signal-to noise ratios at required measurement distances. If so, it may be necessary to restrict the height search of the antenna, and special care should be taken to ensure that maximum emissions are correctly measured.

3—All presently known devices causing emissions above 10 GHz are physically small compared with the beam-widths of typical horn antennas used for EMC measurements. For such EUTs and frequencies, it may be preferable to vary the height and polarization of the EUT instead of the receiving antenna to maximize the measured emissions.

6.2 Sample Calculations for Radiated Measurements

6.2.1 Field Strength Measurements:

Measurements from the Spectrum Analyzer/ Receiver are used to calculate the Field Strength, taking into account the following parameters:

1. Measured reading in dBµV
2. Cable Loss between the receiving antenna and SA in dB and
3. Antenna Factor in dB/m

FS (dBµV/m) = Measured Value on SA (dBµV)+ Cable Loss (dB)+ Antenna Factor (dB/m)
Eg:

Frequency (MHz)	Measured SA (dBµV)	Cable Loss (dB)	Antenna Factor Correction (dB)	Field Strength Result (dBµV/m)
1000	80.5	3.5	14	98.0

All radiated measurement plots in this report are taken from a test SW that calculates the Field Strength based on the above equation.

6.2.2 Measurement Uncertainty

	Uncertainty in dB radiated <30MHz	**Uncertainty in in dB radiated 30MHz - 1GHz**	**Uncertainty in dB radiated > 1GHz**	**Uncertainty in dB Conducted measurement**
standard deviation k=1	2.48	1.93	2.16	0.63
95% confidence interval in dB	4.86	3.79	4.23	1.24
95% confidence interval in dB in delta to Result	+-2.5 dB	+-2.0 dB	+- 2.3dB	+-0.7dB

6.3 Conducted Emissions Procedure

Ref: ANSI C63.10 (2013)

Section 6.2: Standard test method for ac power-line conducted emissions from unlicensed wireless devices

Section 6.2.1: General considerations

AC power-line conducted emission measurements shall be made, unless otherwise specified, over the frequency range from 150 kHz to 30 MHz, to determine the line-to-ground radio-noise voltage that is conducted from all of the EUT current-carrying power input terminals that are directly (or indirectly via separate transformers or power supplies) connected to a public power network. These measurements may also be required between 9 kHz and 150 kHz.

If the EUT normally receives power from another device that in turn connects to the public utility ac power lines, measurements shall be made on that device with the EUT in operation to demonstrate that the device continues to comply with the appropriate limits while providing the EUT with power. If the EUT is operated only from internal or dedicated batteries, with no provisions for connection to the public utility ac power lines (600 VAC or less) to operate the EUT (such as an adapter), then ac power-line conducted measurements are not required.

For direct current (dc) powered devices where the ac power adapter is not supplied with the device, an "off-the-shelf" unmodified ac power adapter shall be used. If the device is supposed to be installed in a host (e.g., the device is a module or PC card), then it is tested in a typical compliant host (see also 5.10.3).

Section 6.2.2: Measurement requirements

The LISN housing, measuring instrument case, reference ground plane, vertical conducting plane, if used, shall be bonded together.

Measured levels of ac power-line conducted emission shall be the emission voltages from the voltage probe, where permitted, or across the 50 Ω LISN port (to which the EUT is connected), where permitted, terminated into a 50 Ω measuring instrument. All emission voltage and current measurements shall be made on each current-carrying conductor at the plug end of the EUT power cord by the use of mating plugs and receptacles on the LISN, if used. Equipment shall be tested with power cords that are normally supplied or recommended by the manufacturer and that have electrical and shielding characteristics that are the same as those cords normally supplied or recommended by the manufacturer. For those measurements using a LISN, the 50 Ω measuring port is terminated by a measuring instrument having 50 Ω input impedance. All other ports are terminated in 50 Ω loads.

ANSI C63.10 (2013)

Section 6.2.4: Exploratory ac power-line conducted emission measurements

Exploratory tests shall be run with the modulating signal(s) specified in 5.12 applied to the EUT. Antenna(s) can be integral or detachable. If detachable, the antenna(s) shall be attached during the test. On any one convenient frequency specified in 5.5 and 5.6, exploratory measurements shall be used to identify the frequency of the emission that has the highest amplitude relative to the limit by operating the EUT in a range of typical modes of operation, cable positions, and with a typical system equipment configuration and arrangement. For each mode of operation and for each ac power current-carrying conductor, cable manipulation shall be performed within the range of likely configurations. For this measurement or series of measurements, the frequency spectrum of interest shall be monitored looking for the emission that has the highest amplitude relative to the limit. Once that emission is found for each current-carrying conductor of each power cord associated with the EUT (but not the cords associated with non-EUT equipment in the overall system), the one configuration and arrangement and mode of operation that produces the emission closest to the limit over all of the measured conductors shall be recorded.

Section 6.2.5: Final ac power-line conducted emission measurements

Based on the exploratory tests of the EUT performed in 6.2.4, the one EUT cable configuration and arrangement and mode of operation that produced the emission with the highest amplitude relative to the limit is selected for the final measurement, while applying the appropriate modulating signal to the EUT. If the EUT is relocated from an exploratory test site to a final test site, the highest emissions shall be remaximized at the final test location before final ac power-line conducted emission measurements are performed. The final test on all current-carrying conductors of all of the power cords to the equipment that comprises the EUT (but not the cords associated with other non-EUT equipment in the system) is then performed for the full frequency range for which the EUT is being tested for compliance without further variation of the EUT arrangement, cable positions, or EUT mode of operation. If the EUT is composed of equipment units that have their own separate ac power connections (e.g., floor-standing equipment with independent power cords for each shelf that are able to connect directly to the ac power network), then each current-carrying conductor of one unit is measured while the other units are connected to a second (or more) LISN(s). All units shall be measured separately. If a power strip is provided by the manufacturer, to supply all of the units making up the EUT, only the conductors in the power cord of the power strip shall be measured.

If the EUT operates above 30 MHz and uses a detachable antenna, then these measurements shall be made with a representative antenna connected to the antenna output terminals. These tests shall be made with the antenna connected and, if adjustable, fully extended.

Record the six highest EUT emissions relative to the limit of each of the current-carrying conductors of the power cords of the equipment that comprises the EUT over the frequency range specified by the procuring or regulatory agency.

7 Transmitter Spurious Emissions & Restricted Bands- Radiated

7.1 Limits:

§15.247/15.205/15.209 & RSS-210 A8.5 / RSS-Gen 8.9/ 8.10 (restricted bands)
(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
[1]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	([2])
13.36 - 13.41			

Radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

*PEAK LIMIT= 74dBµV/m
*AVG. LIMIT= 54dBµV/m

Table 1:

Frequency of emission (MHz)	Field strength @ 3m (µV/m)	Field strength @ 3m (dBµV/m)
30–88	100	40dBµV/m
88–216	150	43.5 dBµV/m
216–960	200	46 dBµV/m
Above 960	500	54 dBµV/m

Table 2:

Frequency of emission (MHz)	Field strength (µV/m) / (dBuV/m)	Measurement Distance (m)
0.009–0.490	2400/F(kHz) / ---------	300
0.490–1.705	24000/F(kHz) / --------	30
1.705–30.0	30 / (29.5)	30

Radiated spurious emissions shall be measured for the transmit frequencies, transmit power, and data rate for the lowest, middle and highest channel in each frequency band of operation and for the highest gain antenna for each antenna type, and using the appropriate parameters and test requirements described in 5.4.
The highest (or worst-case) data rate shall be recorded for each measurement.

When testing at other than specified distance in the standard, the approach calculation by using 40 dB/decade extrapolation factor equation (4) as follow:

Conversion factor (CF) = 40 log (D/d) = 40 log (300m / 3m) = 80dB

Therefore, 80 dB shall be added to the specified limit @ 30 m to convert to actual test limit @ 3m or shall be subtracted from the actual readings if the specified limit @ 30 m remains the same.

7.2 Test Conditions

Tnom: 23°C; Vnom: 120 VAC

7.3 Test Procedure

Measurement according to ANSI C63.10:2013
Refer to section 6, 6.1 in this test report

Analyzer Settings:
From 9 KHz – 30 MHz
RBW = 9 KHz
Detector: Peak

From 30 MHz – 1 GHz
Detector = Peak / Quasi-Peak
RBW=120 KHz (<1GHz)

Above 1 GHz
Detector = Peak / Average
RBW= 1MHz

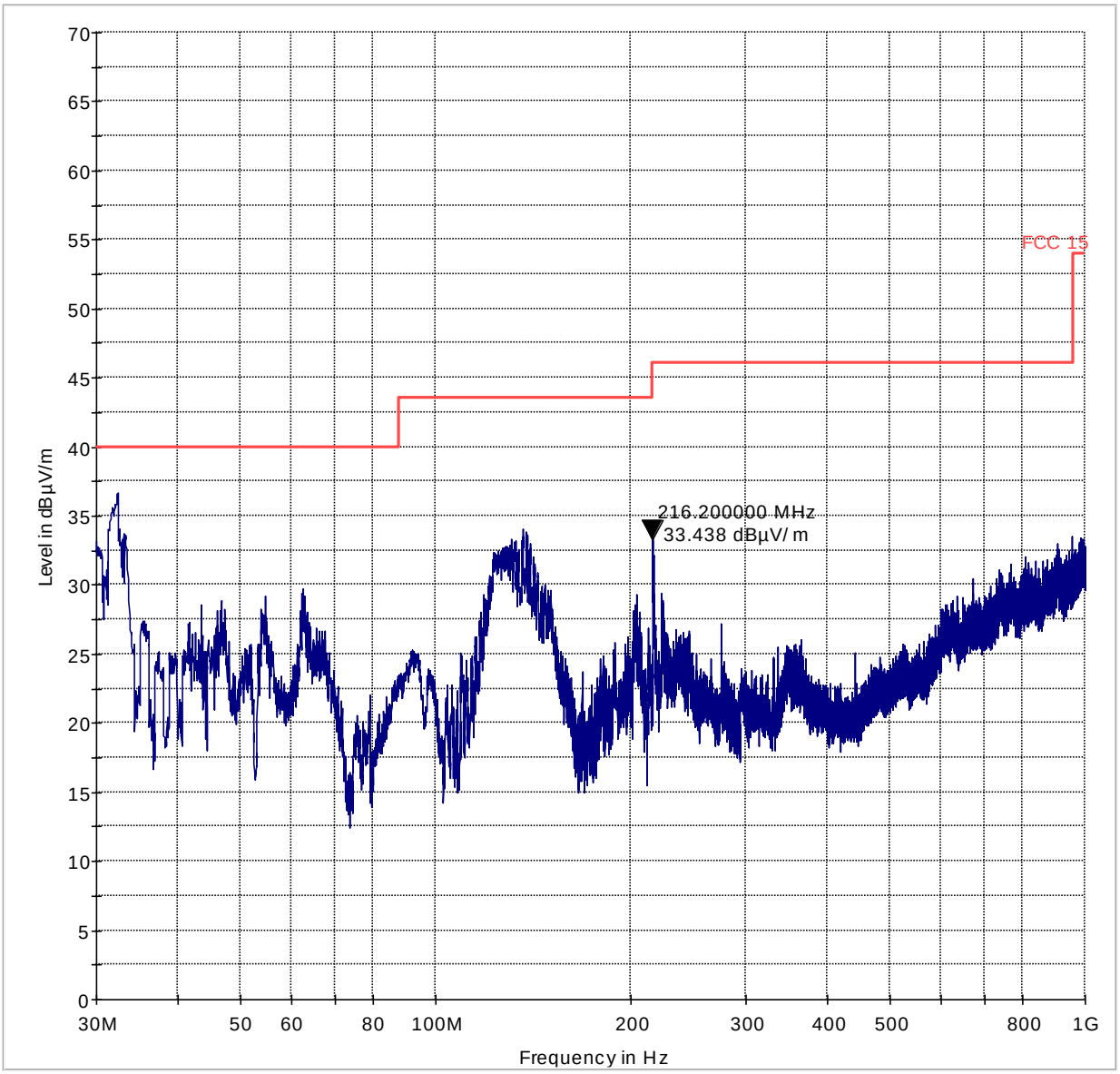
Test mode: *Modulation:* π /4 DQPSK since determined to be the mode with the highest conducted output power.
Unless mentioned otherwise, the emissions outside the limit lines in the plots are from the transmit signal.
Plots reported here represent the worst case emissions for horizontal and vertical antenna polarizations and for three orientations of the EUT.

7.4 Test Verdict:

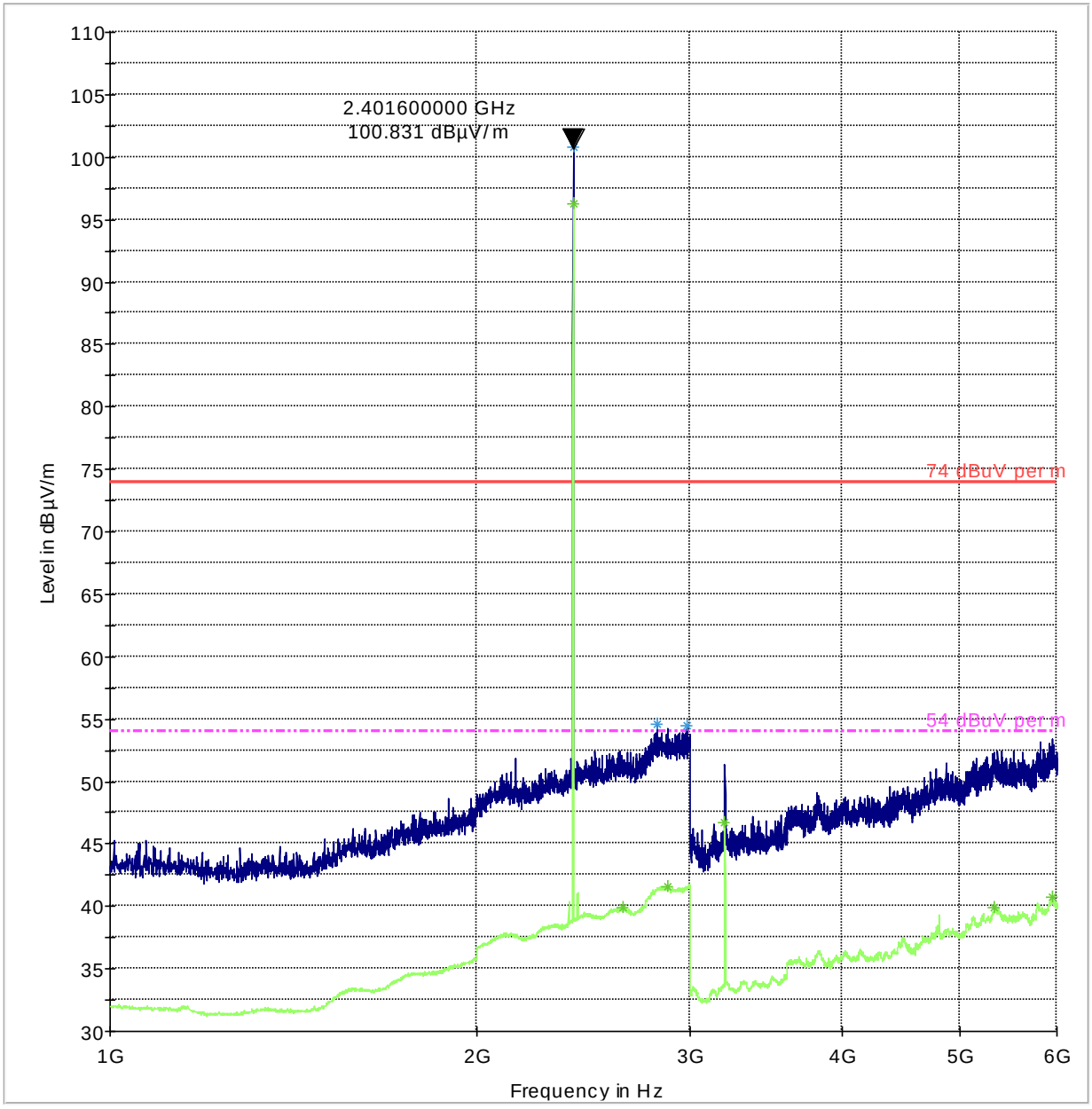
Pass.

7.5 Measurement plots:

7.5.1 30 MHz – 1 GHz: Ch. 0, 2402 MHz, 2-DH5

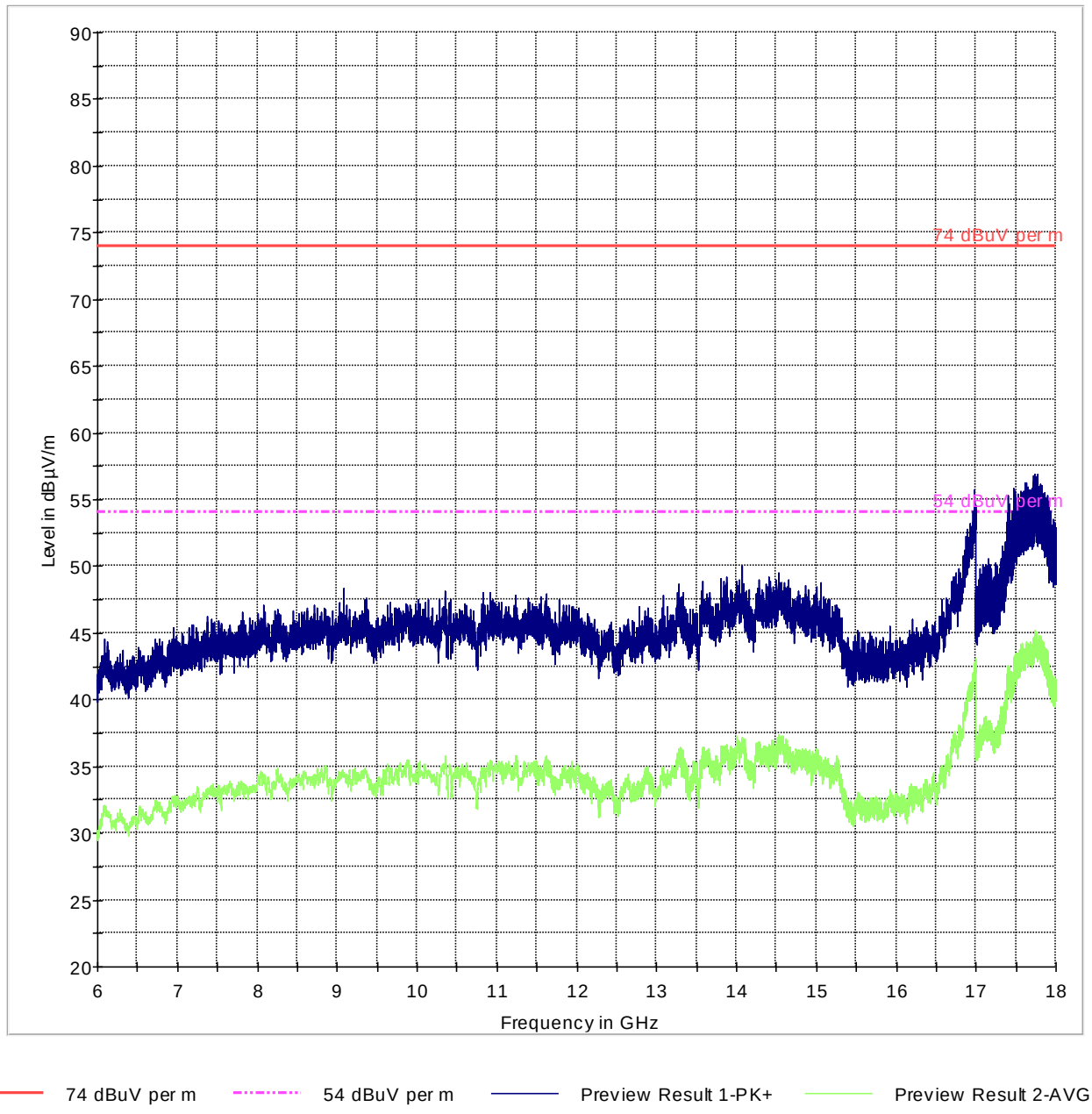


7.5.2 1 GHz – 6 GHz: Ch. 0, 2402 MHz, 2-DH5

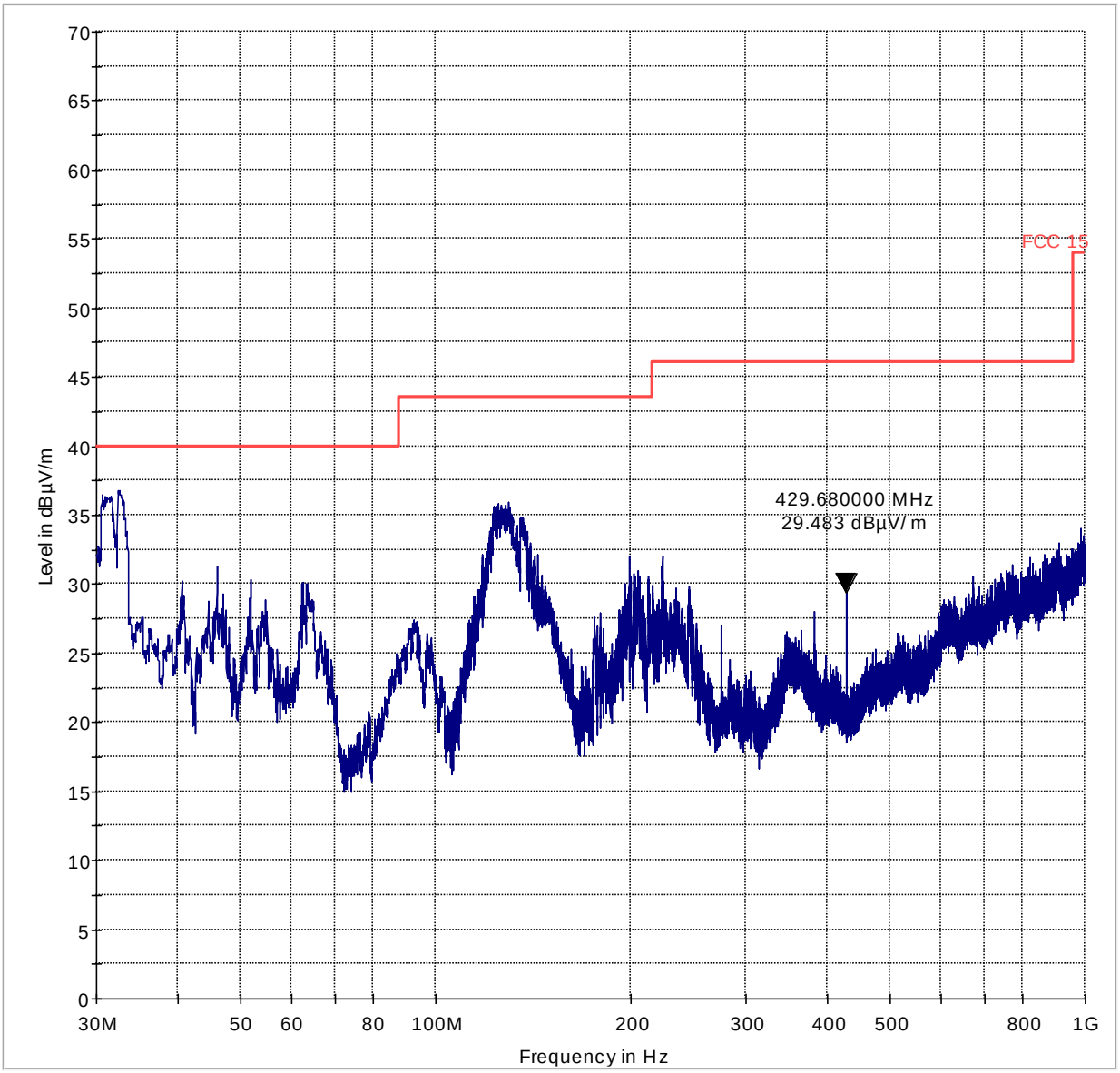


Note: Peak at 2.4016 GHz is the BT EDR Ch. 0 signal.

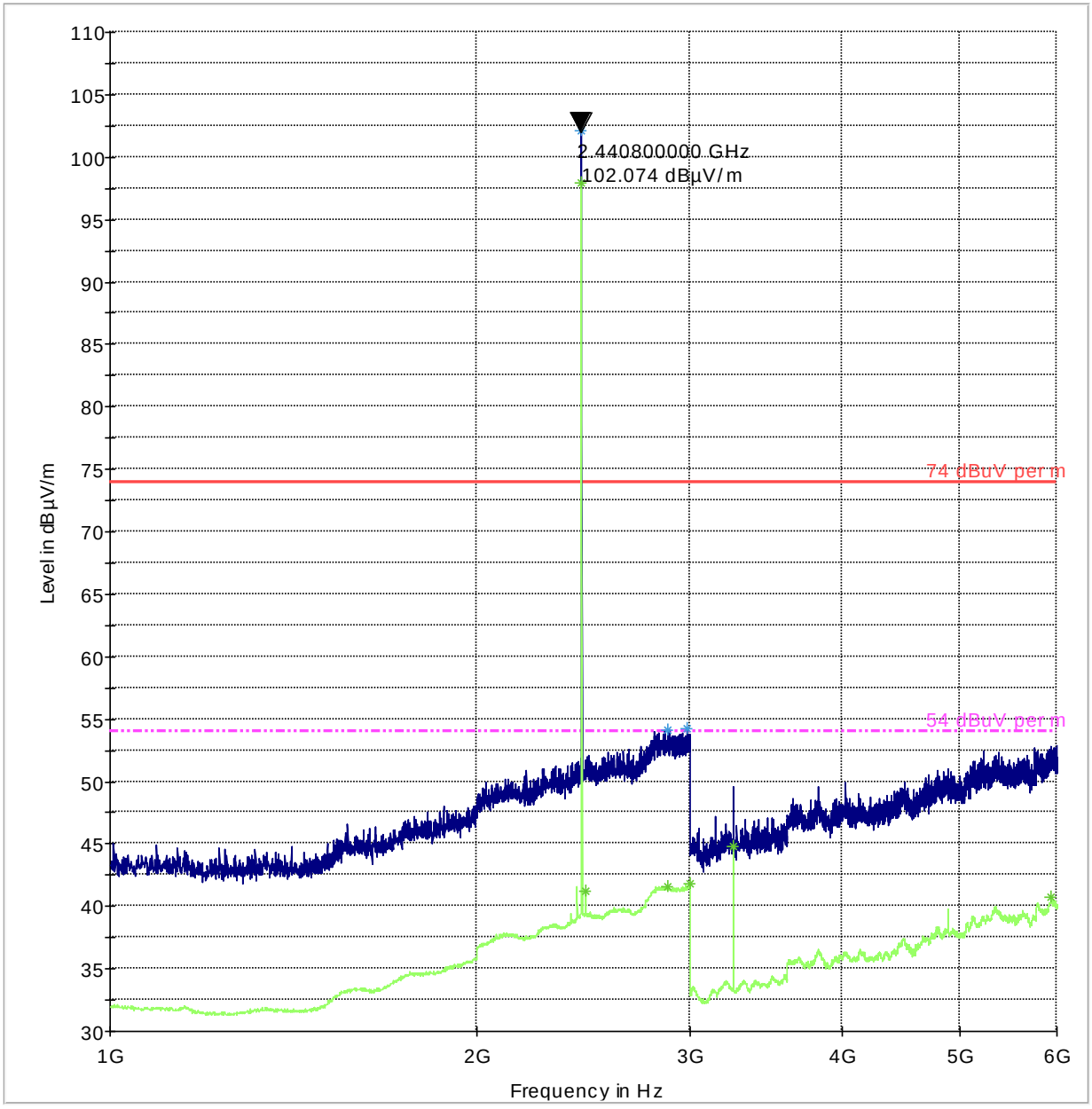
7.5.3 6 GHz – 18 GHz: Ch. 0, 2402 MHz, 2-DH5



7.5.4 30 MHz – 1 GHz: Ch. 39, 2440 MHz, 2-DH5

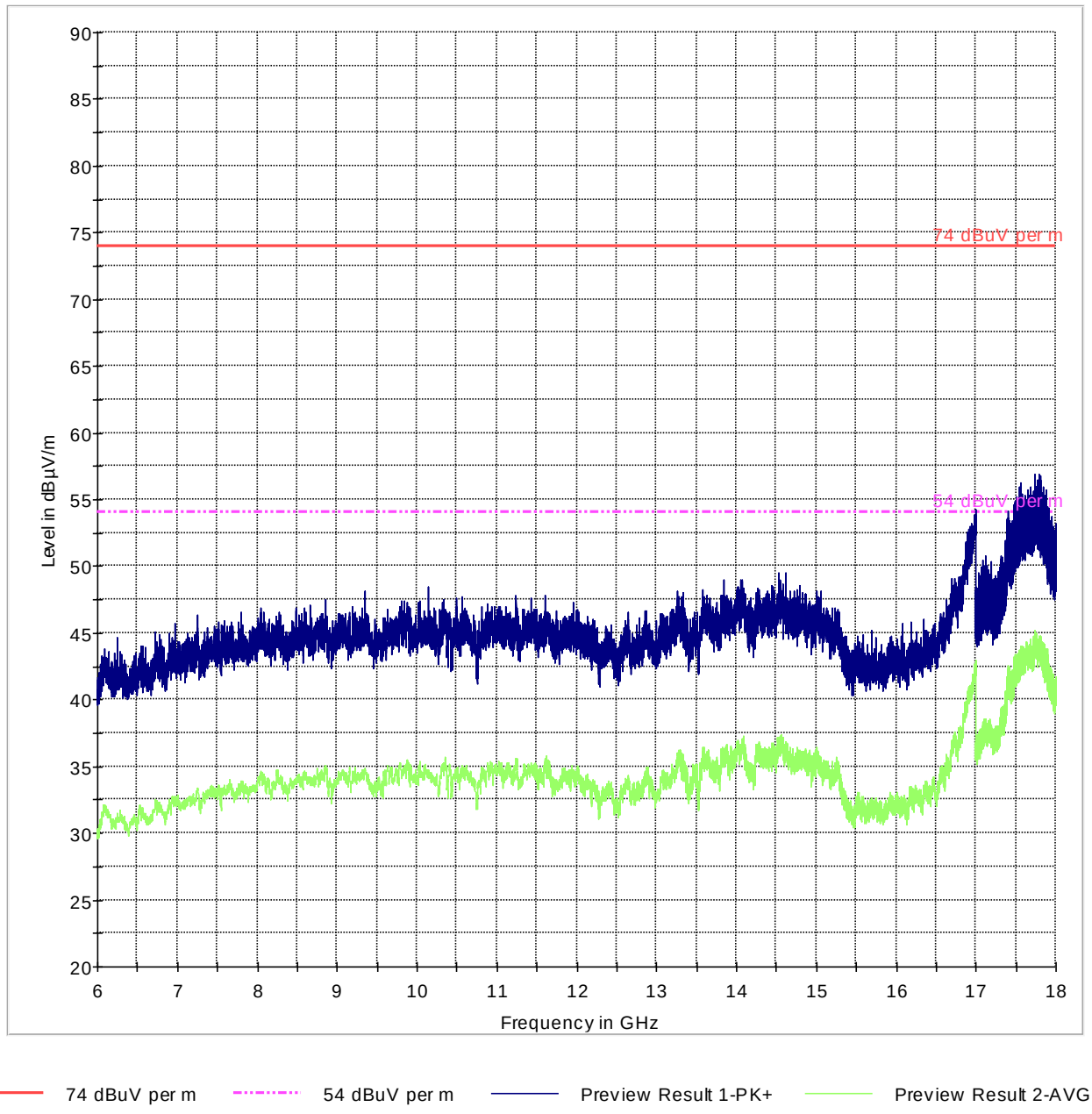


7.5.5 1 GHz – 6 GHz: Ch. 39, 2440 MHz, 2-DH5

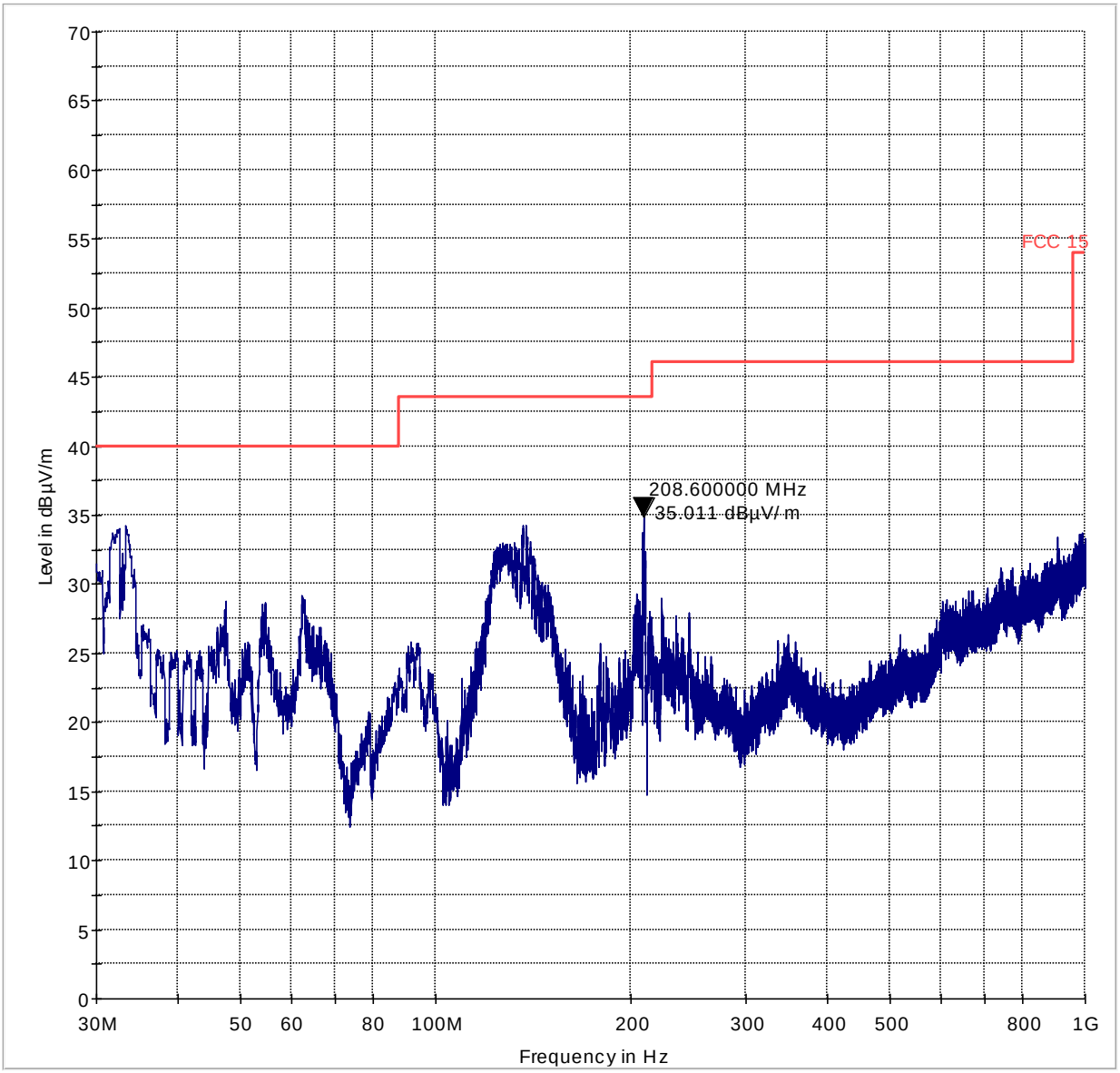


Note: Peak at 2.44 GHz is the BT EDR Ch. 39 signal.

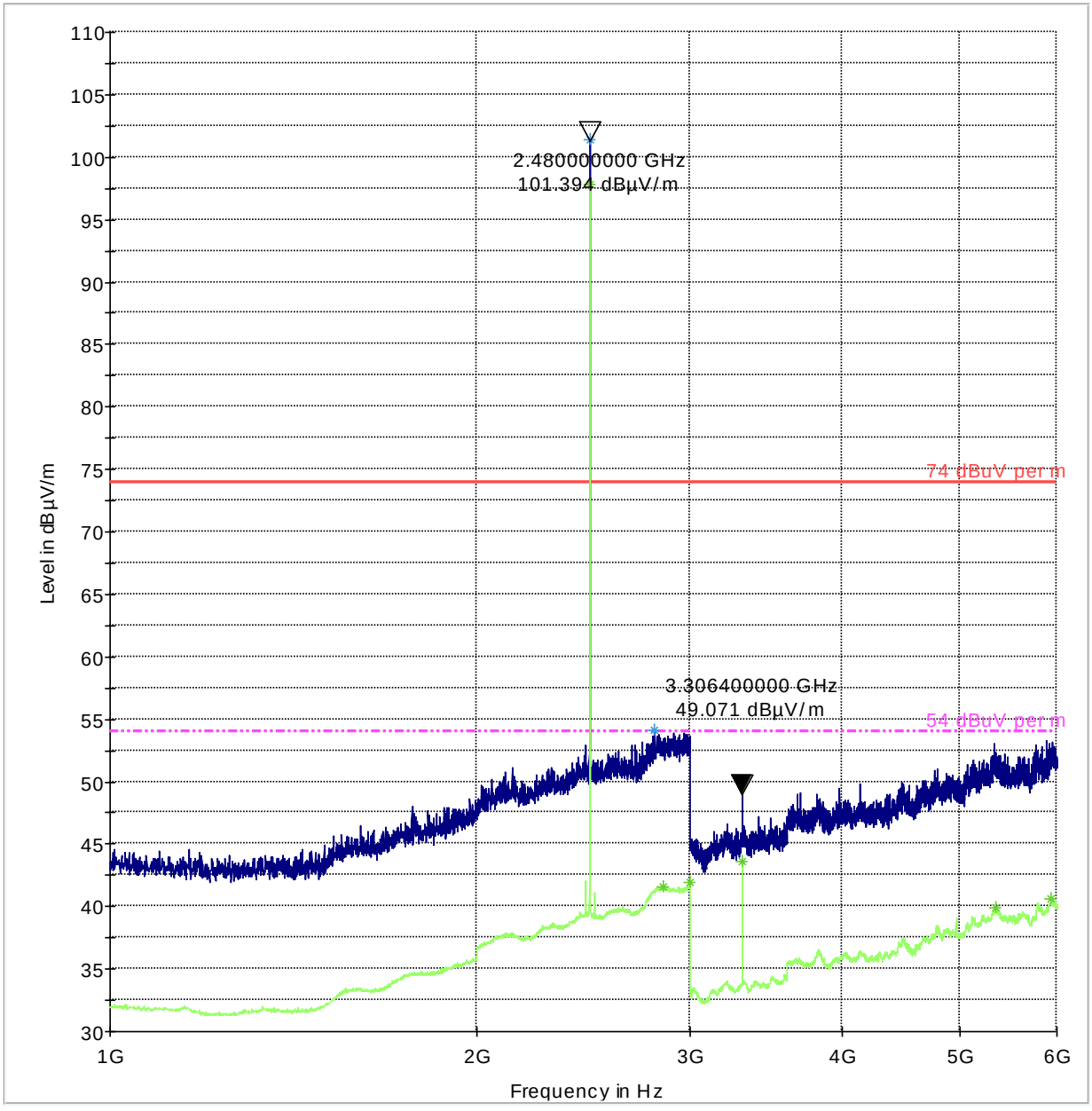
6 GHz – 18 GHz: Ch. 39, 2440 MHz, 2-DH5



7.5.6 30 MHz – 1 GHz: Ch. 78, 2480 MHz, 2-DH5

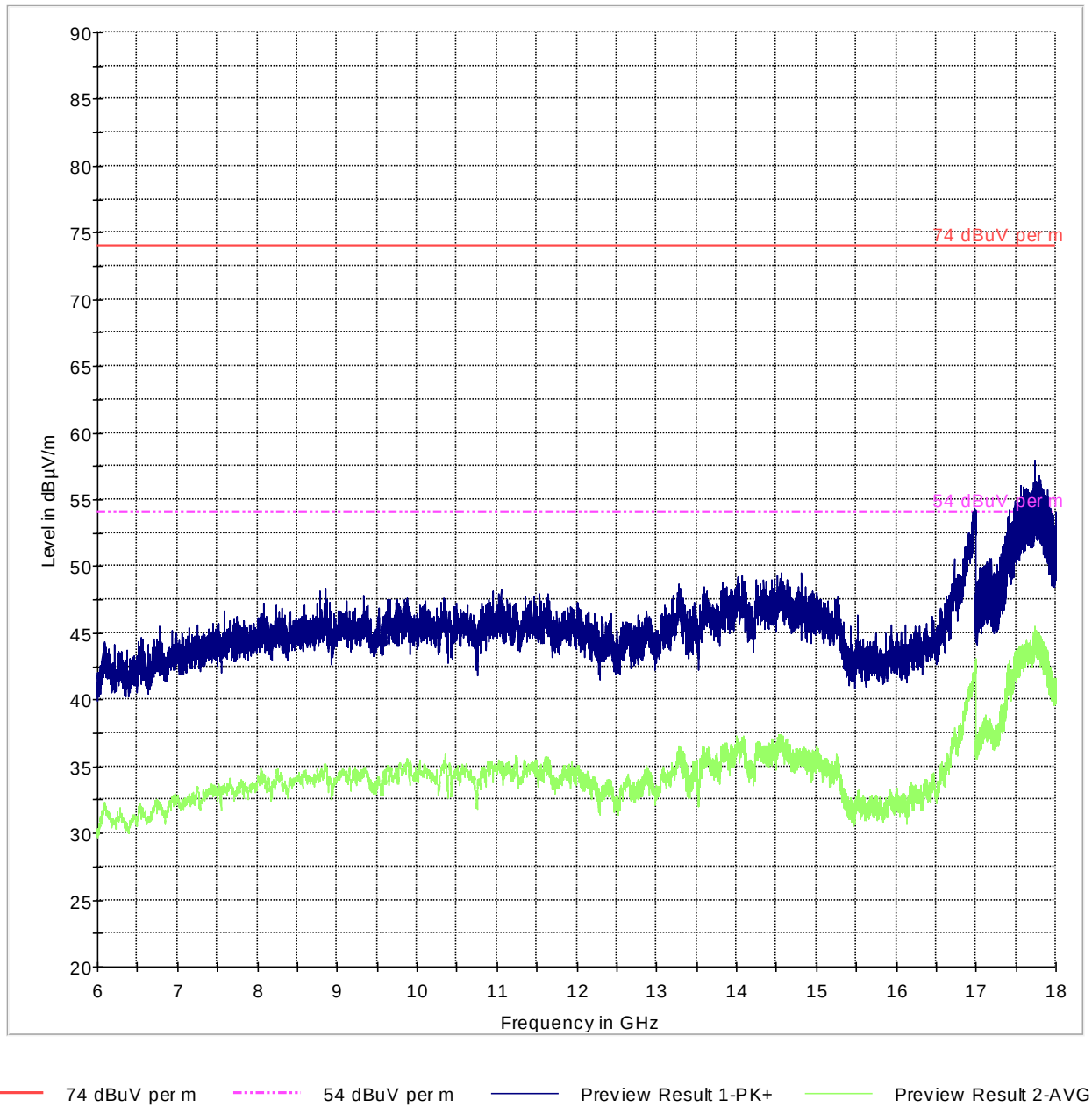


7.5.7 1 GHz – 6 GHz: Ch. 78, 2480 MHz, 2-DH5



Note: Peak at 2.48 GHz is the BT EDR Ch. 78 signal.

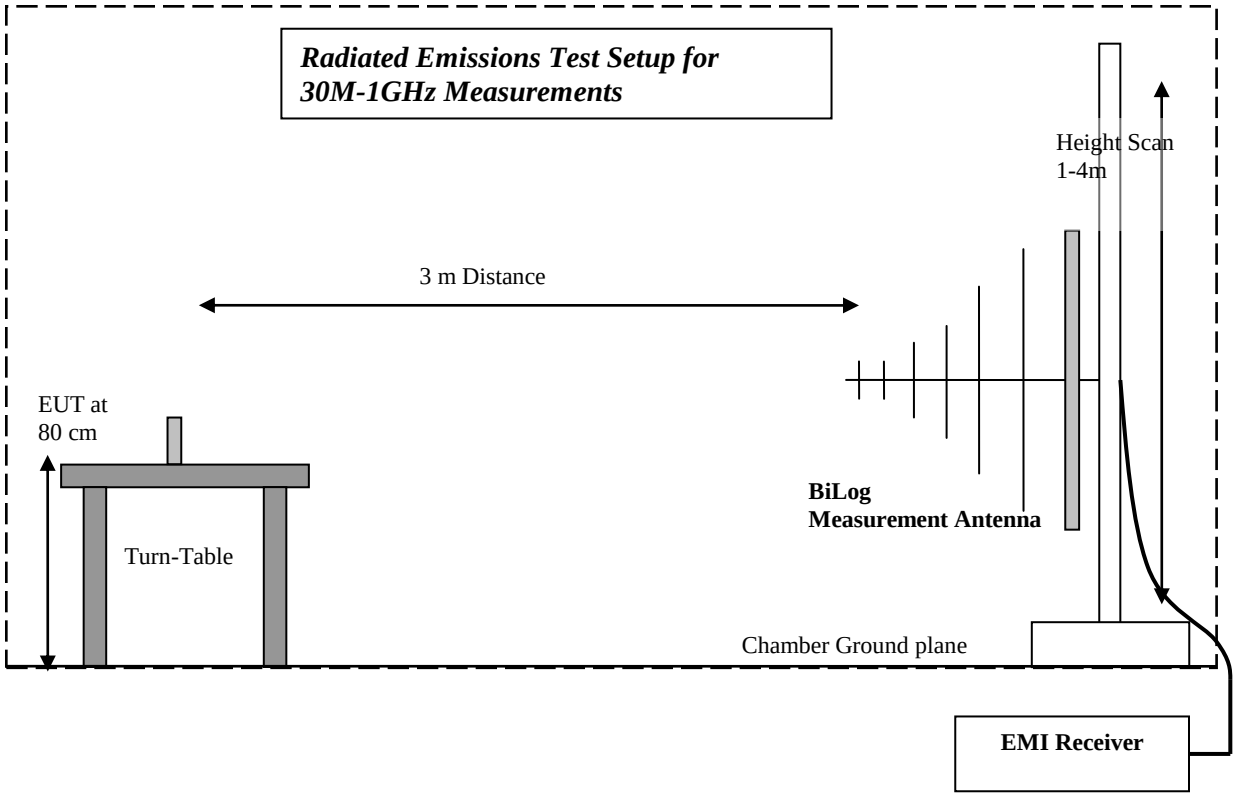
7.5.8 6 GHz – 18 GHz: Ch. 78, 2480 MHz, 2-DH5

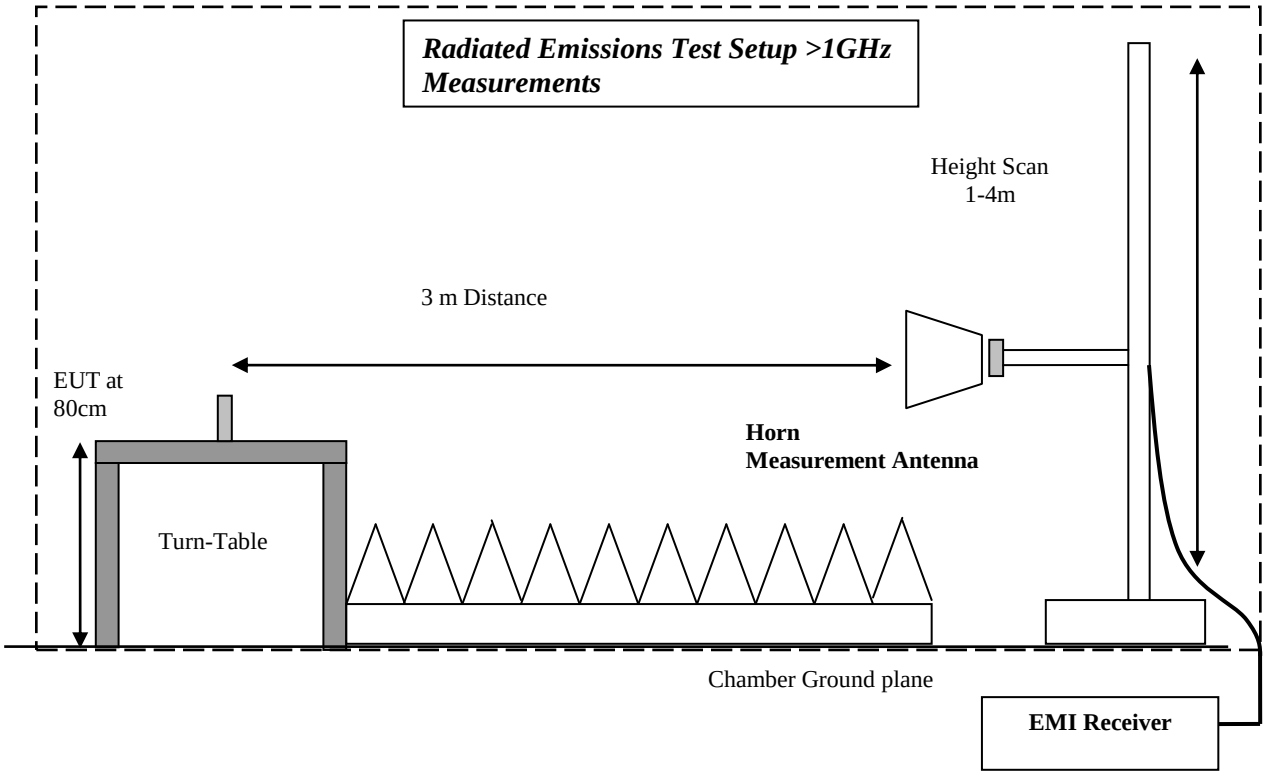


8 Test Equipment and Ancillaries used for tests

No.	Equipment Name	Manufacturer	Type/model	Serial No.	Cal Date	Cal Interval
3m Semi- Anechoic Chamber:						
X	Turn table	EMCO	2075	N/A	N/A	N/A
X	MAPS Position Controller	ETS Lindgren	2092	0004-1510	N/A	N/A
X	Antenna Mast	EMCO	2075	N/A	N/A	N/A
X	Relay Switch Unit	Rohde&Schwarz	RSU	338964/001	N/A	N/A
X	EMI Receiver/Analyzer	Rohde&Schwarz	ESU 40	100251	Sep 2013	2 Year
X	1500MHz HP Filter	Filtek	HP12/1700	14c48	N/A	N/A
X	2800 MHZ HP Filter	Filtek	HP12/2800	14C47	N/A	N/A
X	Pre-Amplifier	Miteq	JS40010260	340125	N/A	N/A
X	Binconilog Antenna	EMCO	3141	0005-1186	Apr 2012	4 Years
X	Horn Antenna	EMCO	3115	35114	Mar 2012	4 Years
Other Equipment						
	Spectrum Analyzer	Rohde&Schwarz	FSU 8	200256	Jun 2013	2 Years
X	Spectrum Analyzer	Rohde&Schwarz	FSU 26.5	100189	Jun 2013	2 Years
	Spectrum Analyzer	Rohde&Schwarz	FSU 26.5	200065	Jun 2013	2 Years
	Vector Signal Generator (Interferer)	Rohde&Schwarz	SMU200A	101935	Feb 2015	2 Years
	Signal Generator (Blocker)	Rohde&Schwarz	SMP04	100151	Jun 2013	2 Years
X	Fast Power Detector 5Ms/s	ETS Lindgren	7002-006	00160034	Sep 2014	2 Years
X	Temperature Sensor	Dickson	SM320	0929600	Apr 2014	2 Years
X	Temperature Chamber	Test Equity	115	150384	N/A	N/A
	Vector Signal generator (Interferer)	Keysight	EE4438C	MY45094596	Jun 2013	2 Years
	WLAN AP (companion device)	Rhode&Schwarz	CMW500	125754	Jun 2013	2 Years
	WLAN AP (companion device)	Cisco	Aironet 1260	FTX1553E037	N/A	N/A
X	DC Power Supply	HP	E3610A	KR83023316	N/A	N/A

9 Test Setup Diagram:




Radiated Emissions Test Setup >1GHz Measurements
Height Scan
1-4m
3 m Distance
EUT at
80cm
Horn
Measurement Antenna
Turn-Table
Chamber Ground plane
EMI Receiver

10 Revision History

Date	Report Name	Changes to report	Report prepared by
2015-04-20	EMC_PHIL4-007_14001_15.247_BT_EDR_CDMA_Module	1st Version	Yu-Chien Ho
2015-06-12	EMC_PHIL4-007_14001_15.247_BT_EDR_CDMA_Module	2nd Version	Yu-Chien Ho