FCC/IC Test Report

FOR:

Manufacturer: Intel Corporation

Model: CZ120
Product Description: HSPA+ Smartphone

FCC ID: O2Z-CZ120
IC ID: 1000W-CZ120

FCC: CFR 47 Part 15.225

IC: RSS-210 Issue 8, Annex 2, Section 6

TEST REPORT #: EMC_INTEL-032-13001_NFC_rev. 1
DATE: 2013-08-30

ACCREDITED
TESTING LABORATORY
Certificate #2135.01

CTIA Authorized Test Lab
LAB CODE 20020328-00

FCC: Accredited

IC recognized # 3462B-1

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1 Assessment

The following device was tested against the applicable criteria specified in FCC rules Part 15.215, 15.225, 15.207, 15.209 and Industry Canada Radio Standard Specification RSS 210 Issue 8, Annex 2. No deviations were ascertained during the course of the tests performed.

Company	Description	Model #
Intel Corporation	HSPA+ Smartphone	CZ120

Responsible for Testing Laboratory:

Date	Section	Name	Signature
2013-08-30	Compliance	Tunji Yusuf (Test Lab Manager)	

Responsible for the Report:

Date	Section	Name	Signature
2013-08-30	Compliance	Zack Gray (EMC Engineer)	2013.08.30 16:54:57 -07'00'

The test results of this test report relate exclusively to the test item specified in Section 3.
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 CETECOM Inc. USA.

2 Administrative Data

2.1 Identification of the Testing Laboratory Issuing the Test Report

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Test Lab Manager:	Tunji Yusuf
Test Engineer:	Zack Gray

2.2 Identification of the Client

Applicant's Name:	Intel Corporation
Street Address:	2200 Mission College MS:SC1-20
City/Zip Code	Santa Clara, CA 94085
Country	USA
Contact Person:	Christine Ryan
Phone No.	4083002167
e-mail:	Christine.m.ryan@intel.com

2.3 Identification of the Manufacturer

Manufacturer's Name:	Same as client.
Manufacturers Address:	
City/Zip Code	
Country	

3 Equipment under Test (EUT)

3.1 Details of the Equipment under Test

Model Number:	CZ120
FCC-ID :	O2Z-CZ120
IC ID:	1000W-CZ120
Product Description:	Smartphone with multiband GSM/GPRS/EDGE/UMTS/HSPA+, WLAN 802.11 a/b/g/n, Bluetooth, NFC and GPS
Technology / Type(s) of Modulation:	NFC, ASK modulation
Operating Frequency Range (MHz):	Nominal band: 13.56, 1 channel
Max. Field strength:	**24.04 dBuV/m @ 3m**
Rated Operating Voltage Range:	Vmin: 3.6V/ Vnom: 3.8V/ Vmax: 4.2V
Rated Operating Temperature Range:	Tmin: -10°C/ Tmax: 55°C
Test Sample Status:	Prototype
Other Radios included:	1. Intel XMM 6360 Radio Module • GSM 850 / 900 / 1800 / 1900 GPRS / EDGE Multislot Class 12 operation • WCDMA / HSPA+ 850 / 900 / 1800 / 2100 2. WLAN 802.11 a/b/g/n Texas Instruments WL 1283 chipset 2.4 and 5.0 GHz bands of operation 3. BT 2.1+ EDR Texas Instruments WL 1283 chipset 2.4 GHz band of operation 4. GPS 1575.42 MHz

3.2 Identification of the Equipment Under Test (EUT)

EUT #	Serial Number	HW Version	SW Version
1	RHBEC2244302235	PR2.0	PR2.0 / RHB JB r42-85

3.3 Identification of Accessory equipment

AE #	Type	Manufacturer	Model	Serial Number
1	AC/DC Adapter	Solcomp	SC1402	12374000330319

3.1 Environmental conditions during Test:

Ambient Temperature: 20-25°C
Relative humidity: 40-60%

3.2 Dates of Testing:

05/10/2013 – 08/30/2013

3.3 Other Testing Notes:

Field strength measured at 3m .

4 Subject of Investigation

Testing was performed on the CZ120 model to evaluate compliance against the applicable criteria specified in FCC CFR 47 Parts 15.225; 15.207; 15.209 and Industry Canada RSS-210, Issue 8, Annex 2.6

This test report is to support a request for new equipment authorization under the
FCC ID**: O2Z-CZ120** and IC ID: **1000W-CZ120**

The device was configured with a manufacturer provided test SW capable of setting the unit in continuous transmission mode and for the supported modulation scheme.

5 Summary of Measurement Results

Test Specification	Test Case	Temperature and Voltage Conditions	Mode	Pass	Fail	NA	NP	Result
§15.215(c) RSS Gen 4.6	Occupied Bandwidth	Nominal	TX Mode	■	☐	☐	☐	Complies
§15.225(e) RSS 210 A2.6	Frequency Stability	Extreme	TX Mode	■	☐	☐	☐	Complies
§15.225 (a)(b)(c) RSS 210 A2.6	Carrier Frequency Field Strength	Nominal	TX Mode	■	☐	☐	☐	Complies
§15.225(d) §15.209 RSS 210 A2.6	RX Spurious Emissions Radiated	Nominal	RX Mode	■	☐	☐	☐	Complies
§15.207(a)	Conducted Emissions <30MHz	Nominal	RX Mode	■	☐	☐	☐	Complies

Note: NA= Not Applicable; NP= Not Performed.

6 Measurement Results

6.1 Occupied Bandwidth/Emission Bandwidth

6.1.1 References

FCC: CFR 47 part 15.215(c)
IC: RSS Gen 4.6

6.1.2 Measurement requirements:

6.1.2.1 FCC 15.215(c): Additional provisions to the general radiated emission limitations

Intentional radiators operating under the alternative provisions to the general emission limits must be designed to ensure that the 20 dB bandwidth of the emission is contained within the frequency band 13.110 – 14.010 MHz.

6.1.3 Measurement Procedure:

1. Connect the equipment in radiated mode to a Spectrum Analyzer.
2. Adjust the settings of the EUT to set it to maximum power at the required channel and in continuous transmission mode.
3. Set the spectrum analyzer to measure the 99% (-20 dB) occupied bandwidth.

Spectrum analyzer settings:
RBW = 9.1 kHz (atleast 1% of Occupied BW)
VBW = 10 kHz;
Detector: Peak-Max Hold.
Measurement Uncertainty: ±0.1 kHz

6.1.4 Test Conditions:

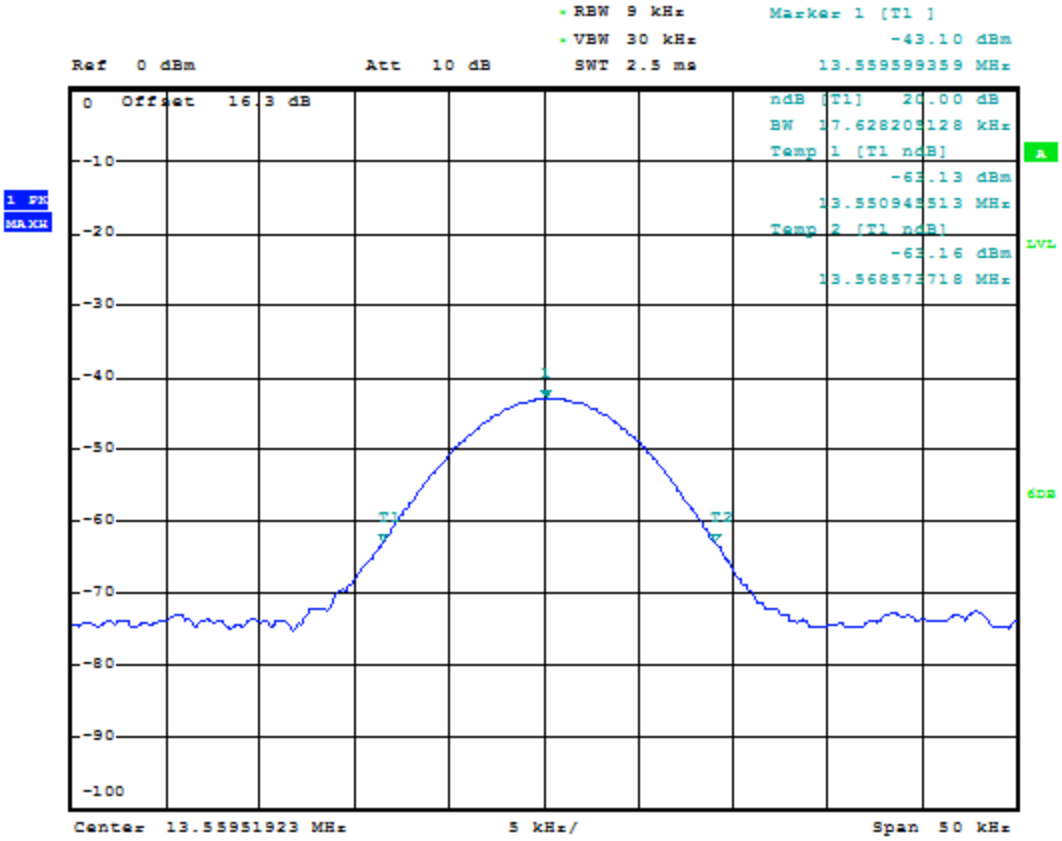
Tnom: 20°C; Vnom: 3.8 V

6.1.5 Test Results

NFC 13.56 MHz: ASK	
Frequency (MHz)	**-20 dB Occupied/Emissions Bandwidth (kHz)**
13.56	17.63

Note: Measurement made with near-field probe.

6.1.6 Test Plots:



6.1.7 Test Verdict:

Pass.

6.2 Frequency Stability

6.2.1 References

FCC: CFR Title 47 Part 15.225(e)
IC: RSS 210 Section A2.6

6.2.2 Measurement Requirements:

6.2.2.1 Frequency Stability

Frequency stability is a measure of frequency drift due to temperature and supply voltage variations with reference to the frequency measured at an appropriate reference temperature and the rated supply voltage. A hand-held device that is only capable of operating using internal batteries shall be tested using a new battery without any further requirement to vary the supply voltage. Alternatively, an external supply voltage can be used and set at the battery nominal voltage, and again at the battery operating end point voltage which shall be specified by the equipment manufacturer.

6.2.3 Limits:

6.2.3.1 For battery powered equipment:

According to CFR title 47 15.225(e), the frequency stability of the carrier signal shall be maintained within ±0.01% of the operating frequency over a temperature variation of -20 degrees to +50 degrees C using a new battery.

6.2.3.2 For equipment powered by primary supply voltage:

According to CFR title 47 15.225(e), the frequency stability of the carrier signal shall be maintained within ±0.01% of the operating frequency over a temperature variation of -20 degrees to +50 degrees C and 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.

6.2.3.3 RSS-210 Section A2.6

Carrier frequency stability shall be maintained to ±0.01% (±100 ppm)

6.2.4 Measurement procedure:

1. Ensure the EUT is set to transmit continuously,
2. Subject the EUT to long soak at -20 C.
3. With the EUT, powered via nominal voltage, measure the carrier frequency. These Measurements should be made within 2 minutes of powering up the EUT, to prevent significant self-warning.
4. Repeat the above measurements at 10C increments from -20 C to +50 C. Allow at least 1 ½ hours at each temperature, unpowered, before making measurements.
5. Re-measure carrier frequency at room temperature with nominal voltage. Re-measure carrier frequency at low and high voltage. If equipment is battery powered measure at battery end-point.
6. At all temperature levels hold the temperature to ± 0.5 C during the measurement procedure.

6.2.5 Test Results:

Voltage (V)	Frequency Error (Hz)	Frequency Error (ppm)
Nominal V: 3.8	440	32.45
85% of Nom V: 3.23	80	5.9
115% of Nom V: 4.37	80	5.9
Battery End-point V: 2.9	160	11.8

FREQ ERROR vs. TEMPERATURE

Temperature (°C)	Frequency Error (Hz)	Frequency Error (ppm)
-30	321	23.67
-20	321	23.67
-10	321	23.67
0	232	17.11
+10	80	5.9
+20	240	17.7
+30	160	11.8
+40	321	23.67
+50	80	5.9

Measurement Uncertainty: ±0.1 kHz

6.2.6 Test Verdict:

Pass.

6.3 Field Strength Requirements Operating within the band 13.110 – 14.010 MHz.

6.3.1 References

FCC: CFR 15.225(a)(b)(c)
IC: RSS 210 A2.6

6.3.2 Measurement Requirements:

6.3.2.1 Carrier Frequency Power

ANSI C63.4 (2009)

The EUT should be set up in its typical configuration and arrangement, and operated to transmit maximum power. For tabletop systems, cables or wires should be manipulated within the range of likely arrangements. For floor-standing equipment, the cables or wires should be located in the same manner as the user would install them and no further manipulation is made. For combination EUTs, the tabletop and floor-standing portions of the EUT shall follow the procedures for their respective setups and cable manipulation. If the manner of cable installation is not known, or if it changes with each installation, cables or wires for floor-standing equipment shall be manipulated to the extent possible to produce the maximum level of emissions.

This investigation is performed with the EUT placed on a non-metallic table 80cm above the ground reference plane. The EUT is rotated 360^{o} and the measurement antenna alternated to repeat the measurements for both planar and coplanar antenna polarizations. The carrier frequency is maximized by altering the measurement antenna polarity and EUT orientation.

6.3.3 Limits

The Field strength of any emissions within the band 13.110 – 14.010 MHz shall not exceed the following limits:

Frequency (MHz)	Field strength limit in µV/m @ 30m	Field strength limit in dBµV/m @ 3m extrapolated as per FCC part 15.31(f)(2), 40dB/decade
13.110 – 13.410	106	80
13.410 – 13.533	334	90.5
13.553 – 13.567	15848	124
13.567 – 13.710	334	90.5
13.710 – 14.010	106	80

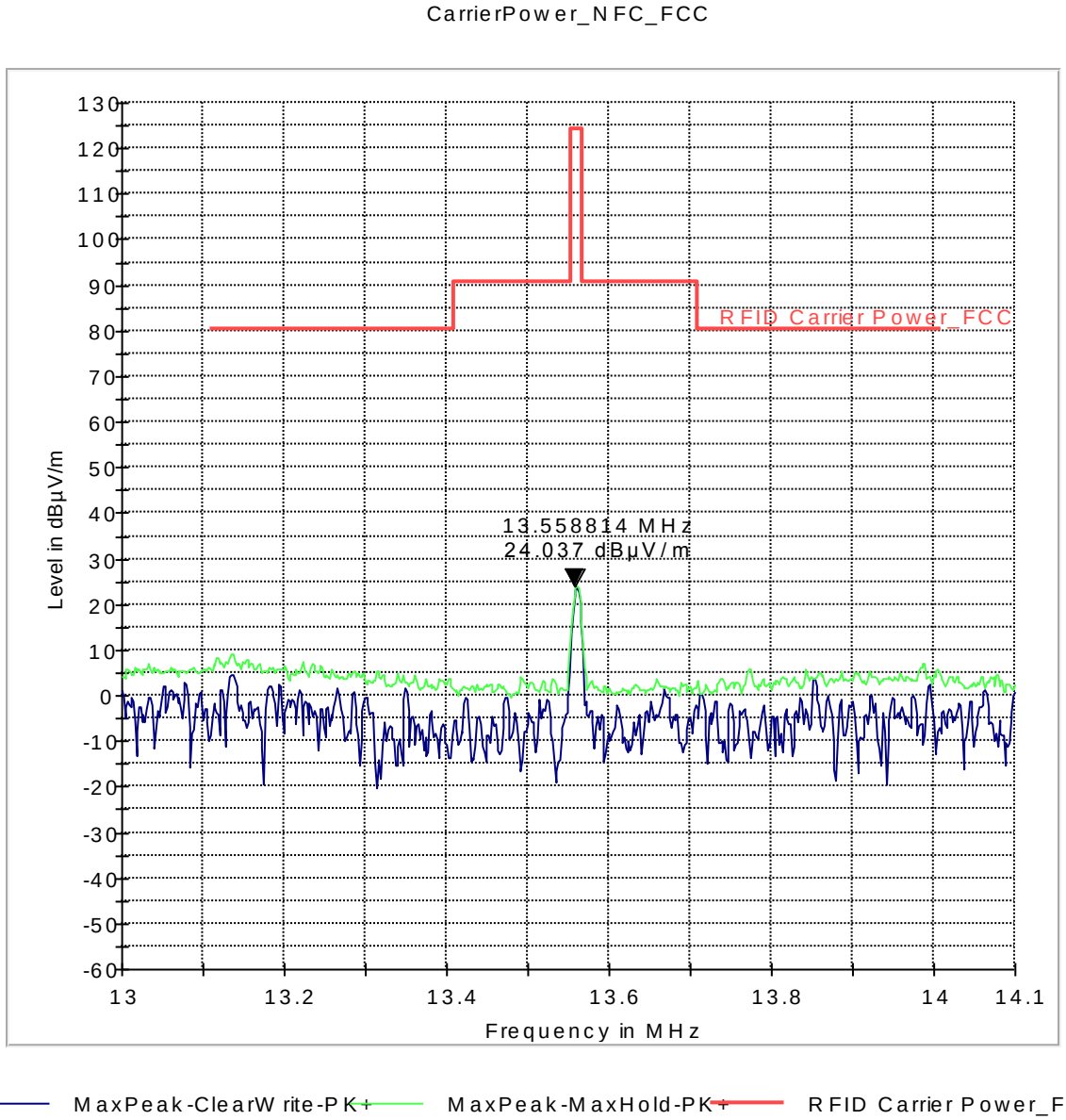
6.3.4 Measurement Procedure:

1. Connect the equipment in a radiated test environment with EUT's antenna in the horizontal position
2. Adjust the EUT settings to transmit maximum power
3. Set the spectrum analyzer to measure peak hold with the required settings.
4. Place the measurement antenna in a planar orientation. Rotate the EUT 360°
5. Repeat the measurement with the receiving antenna in a coplanar orientation. Rotate the EUT 360°

Spectrum Analyzer settings:
RBW = 9 kHz;
VBW = 30 kHz
Detector: Peak-Max Hold.
Measurement Uncertainty: ±3 dB

6.3.5 Test Conditions:
Tnom: 20°C; Vnom: 3.8 V

6.3.6 Test Plots:



The red colored line shows the limit per part 15.225 extrapolated to 3m distance according to 15.31(f)(2), i.e. 40dB/decade.

6.3.7 Test Verdict:

Pass.

6.4 Radiated Emissions

6.4.1 §15.209 Radiated emission limits- Unintentional Radiators:

(a) Except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency of emission (MHz)	Field strength (µV/m)
30–88	100
88–216	150
216–960	200
Above 960	500

(b) The field strength of radiated emissions from a Class A digital device, as determined at a distance of 10 meters, shall not exceed the following:

Frequency of emission (MHz)	Field strength (µV/m)
30–88	90
88–216	150
216–960	210
Above 960	300

6.4.2 Measurement Procedure:

ANSI C63.4 (2009) Section 8.3.1.1: Exploratory radiated emission 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. At near distances, for EUTs of comparably small size, it is relatively easy to determine the spectrum signature of the EUT and, if applicable, the EUT configuration that produces the maximum level of emissions. A shielded room may be used for exploratory testing, but may have anomalies that can lead to significant errors in amplitude measurements.

Broadband antennas and a spectrum analyzer or a radio-noise meter with a panoramic display are often useful in this type of testing. It is recommended that either a headset or loudspeaker be connected as an aid in detecting ambient signals and finding frequencies of significant emission from the EUT when the exploratory and final testing is performed in an OATS with strong ambient signals. Caution should be taken if either antenna height between 1 and 4 meters or EUT azimuth is not fully explored. Not fully exploring these parameters during exploratory testing may require complete testing at the OATS or semi-anechoic chamber when the final full spectrum testing is conducted.

The EUT should be set up in its typical configuration and arrangement, and operated in its various modes. For tabletop systems, cables or wires should be manipulated within the range of likely arrangements. For floor-standing equipment, the cables or wires should be located in the same manner as the user would install them and no further manipulation is made. For combination EUTs, the tabletop and floor-standing portions of the EUT shall follow the procedures for their respective setups and cable manipulation. If the manner of cable installation is not known, or if it changes with each installation, cables or wires for floor-standing equipment shall be manipulated to the extent possible to produce the maximum level of emissions.

For each mode of operation required to be tested, the frequency spectrum shall be monitored. Variations in antenna height between 1 and 4 m, antenna polarization, EUT azimuth, and cable or wire placement (each variable within bounds specified elsewhere) shall be explored to produce the emission that has the highest amplitude relative to the limit. A step-by-step technique for determining this emission can be found in Annex C.

When measuring emissions above 1 GHz, the frequencies of maximum emission shall be determined by manually positioning the antenna close to the EUT and by moving the antenna over all sides of the EUT while observing a spectral display. It will be advantageous to have prior knowledge of the frequencies of emissions above 1 GHz. If the EUT is a device with dimensions approximately equal to that of the measurement antenna beamwidth, the measurement antenna shall be aligned with the EUT.

ANSI C63.4 (2009) Section 8.3.1.2: Final radiated emission measurements

Based on the measurement results in 8.3.1.1, the one EUT, cable and wire arrangement, and mode of operation that produces the emission that has the highest amplitude relative to the limit is selected for the final measurement. The final measurement is then performed on a site meeting the requirements of 5.3, 5.4, or 5.5 as appropriate without variation of the EUT arrangement or EUT mode of operation. If the EUT is relocated from an exploratory test site to a final test site, the highest emission shall be remaximized at the final test location before final radiated emissions measurements are performed. However, antenna height and polarity and EUT azimuth are to be varied. In addition, the full frequency spectrum (for the range to be checked for meeting compliance) shall be investigated.

This investigation is performed with the EUT rotated 360°, the antenna height scanned between 1 m and 4 m, and the antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations. During the full frequency spectrum investigation, particular focus should be made on those frequencies found in exploratory testing that were used to find the final test configuration, mode of operation, and arrangement (associated with achieving the least margin with respect to the limit). This full spectrum test constitutes the compliance measurement.

For measurements above 1 GHz, use the cable, EUT arrangement, and mode of operation determined in the exploratory testing to produce the emission that has the highest amplitude relative to the limit. Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the antenna in the “cone of radiation” from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response. The antenna may have to be higher or lower than the EUT, depending on the EUT’s size and mounting height, but the antenna should be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane. If the transmission line for the measurement antenna restricts its range of height and polarization, the steps needed to ensure the correct measurement of the maximum emissions, shall be described in detail in the report of measurements. Data collected shall satisfy the report requirements of Clause 10.

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.

6.4.3 Sample Calculations for Radiated Measurements

6.4.3.1 Field Strength Measurements:

Measurements from the Spectrum Analyzer/ Receiver is 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.

6.4.4 Testing Notes:

The relevant procedures of ANSI C63.4: 2009 have been followed.
All radiated test data in this report shows the worst case emissions for H/V measurement antenna polarizations and for all three orthogonal orientations of the EUT.

For the measurement range up to 30 MHz in the following plots the field strength results from 3m distance measurement are extrapolated to 300m and 30m distance respectively, by 40dB/decade, according to part 15.31(f)(2).

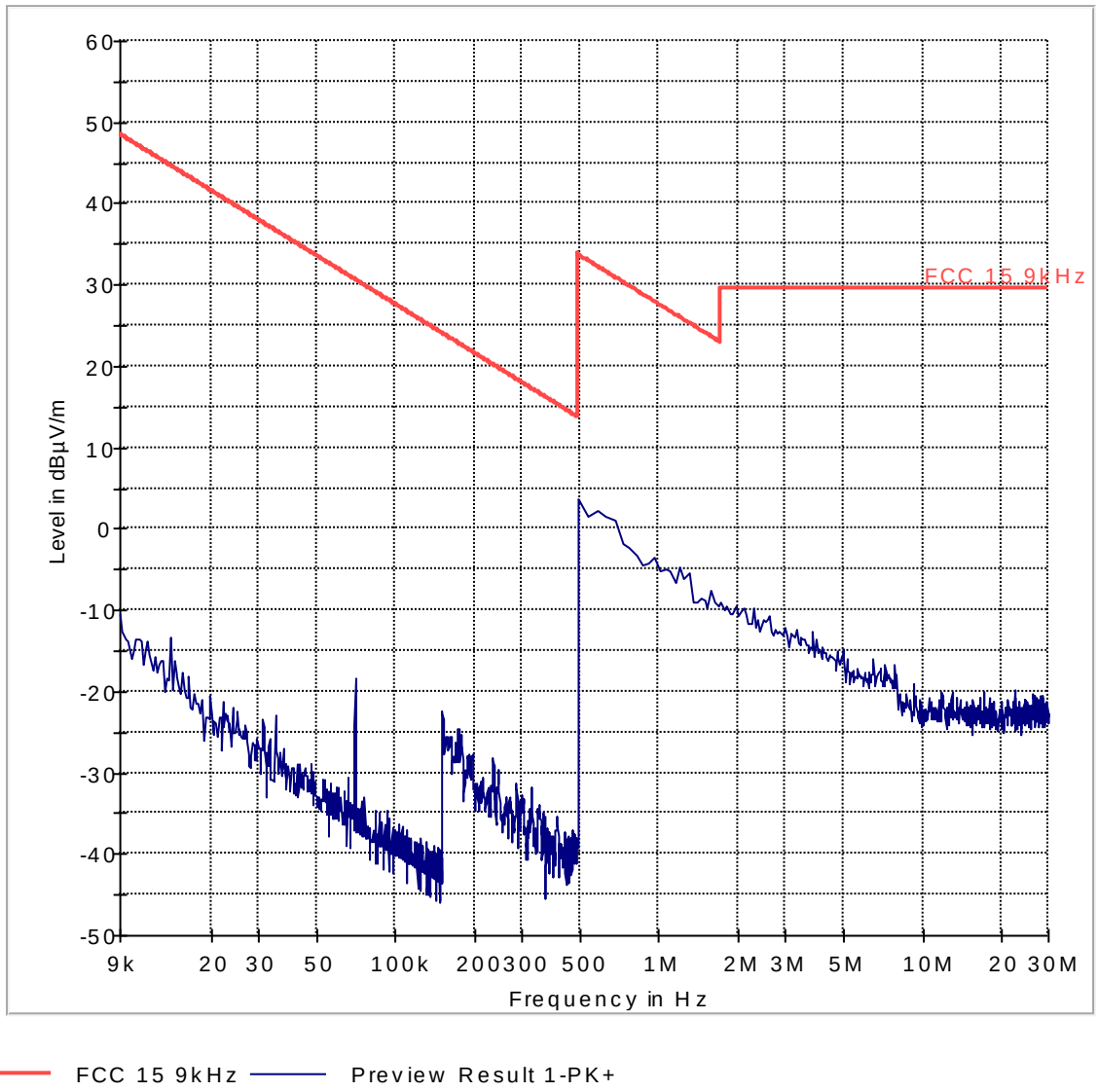
The red limit line shows the 300 m limit up to 490 kHz, the 30m limit up to 30 MHz and 3m limit above 30MHz.

6.4.5 Test Verdict:

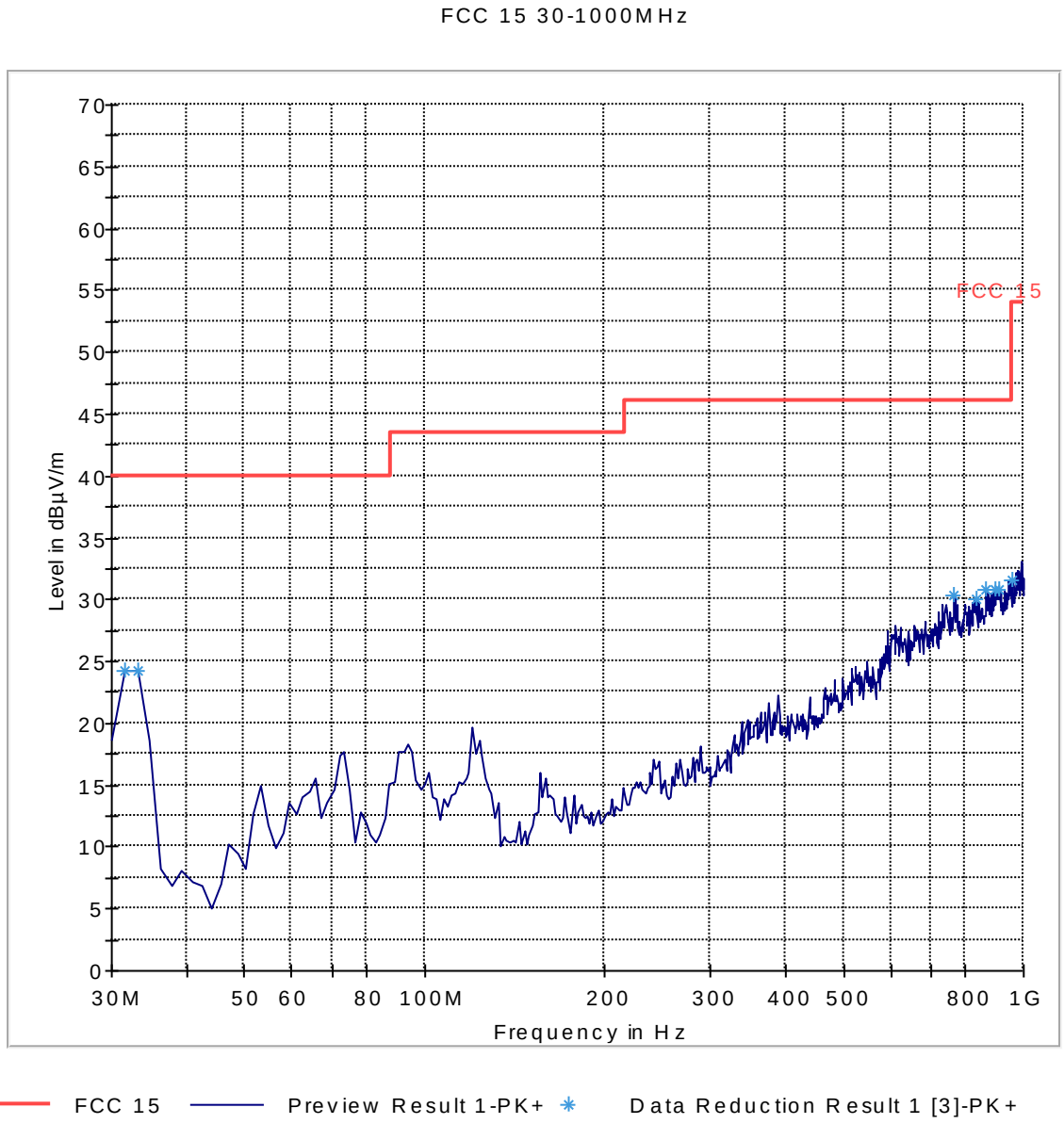
Pass.

6.4.6 Test plots:

Radiated Emissions: 9k- 30 MHz



Radiated Emissions: 30M- 1GHz



7 AC Power Line Conducted Emissions

7.1.1 § 15.207 Conducted limits- Unintentional Radiators

(a) Except for Class A digital devices, for equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 µH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the band edges.

Frequency of emission (MHz)	Conducted limit (dBµV)	
	Quasi-peak	Average
0.15–0.5	66 to 56*	56 to 46*
0.5–5	56	46
5–30	60	50

*Decreases with the logarithm of the frequency.

(b) For a Class A digital device that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 µH/50 ohms LISN. Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Frequency of emission (MHz)	Conducted limit (dBµV)	
	Quasi-peak	Average
0.15–0.5	79	66
0.5–5	73	60

7.1.2 Measurement Procedure:

ANSI C63.4 (2009) Section 7.3.1: Measurements at a test site

Tabletop devices shall be placed on a nonconducting platform, of nominal size 1 m by 1.5 m, raised 80 cm above the reference ground plane. The vertical conducting plane, when used, or wall of a screened room shall be located 40 cm to the rear of the EUT. Floor-standing devices shall be placed either directly on the reference ground plane or on insulating material. All other surfaces of tabletop or floor-standing EUTs shall be at least 80 cm from any other grounded conducting surface, including the case or cases of one or more LISNs. AC power-line adapters that are used with EUTs, such as notebook computers, should be placed as typically used (i.e., on the tabletop) if the adapter-to-EUT cord is too short to allow the power adapter to reach the floor. Each current-carrying conductor of the EUT power cord(s), except the ground (safety) conductor(s), shall be individually connected through a LISN to the input power source. All 50 Ω ports of the LISN shall be resistively terminated into 50 Ω loads when not connected to the measuring instrument. When the test configuration consists of multiple units (EUT and associated/peripheral equipment, or EUT consisting of multiple equipment) that have their own power cords, ac power-line conducted emissions measurements shall be performed with the ac power-line cord of the particular unit under test connected to one LISN that is connected to the measuring instrument. Those power cords for the units in the remainder of the configuration not under measurement shall be connected to a separate LISN or LISNs. This connection may be made using a multiple-receptacle device. Emissions from each current-carrying conductor of the EUT shall be individually measured. Where multiple portions of the EUT receive ac power from a common power strip, which is furnished by the manufacturer as part of the EUT, measurements need only be made on the current-carrying conductors of the common power strip. Adapters or extension cords connected between the EUT power cord plug and the LISN power receptacle shall be included in the LISN setup, such that the calibration of the combined adapter or extension cord with an adapter and the LISN meets the requirements of 5.2.3.
If the EUT consists of a number of devices that have their own separate ac power connections, e.g., a floorstanding frame with independent power cords for each shelf, that are able to connect directly to the ac power network, each current-carrying conductor of one device is measured while the other devices are connected to a second (or more) LISN(s). All devices shall be separately measured. If the manufacturer provides a power strip to supply power to all of the devices making up the EUT, only the conductors in the common power cord to the power strip shall be measured.

If the EUT is normally operated with a ground (safety) connection, the EUT shall be connected to the ground at the LISN through a conductor provided in the lead from the ac power to the LISN.
The excess length of the power cord between the EUT and the LISN receptacle (or ac power receptacle where a LISN cannot be used), or an adapter or extension cord connected to and measured with the LISN, shall be folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length. If the EUT does not have a flexible power lead, the EUT shall be placed at a distance of 80 cm from the LISN (or power receptacle where a LISN cannot be used) and connected thereto by a power lead or appropriate connection no more than 1 m long. The measurement shall be made at the LISN end of this power lead or connection.

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

ANSI C63.4 (2009) Section 7.3.3: Exploratory ac power-line conducted emission measurements

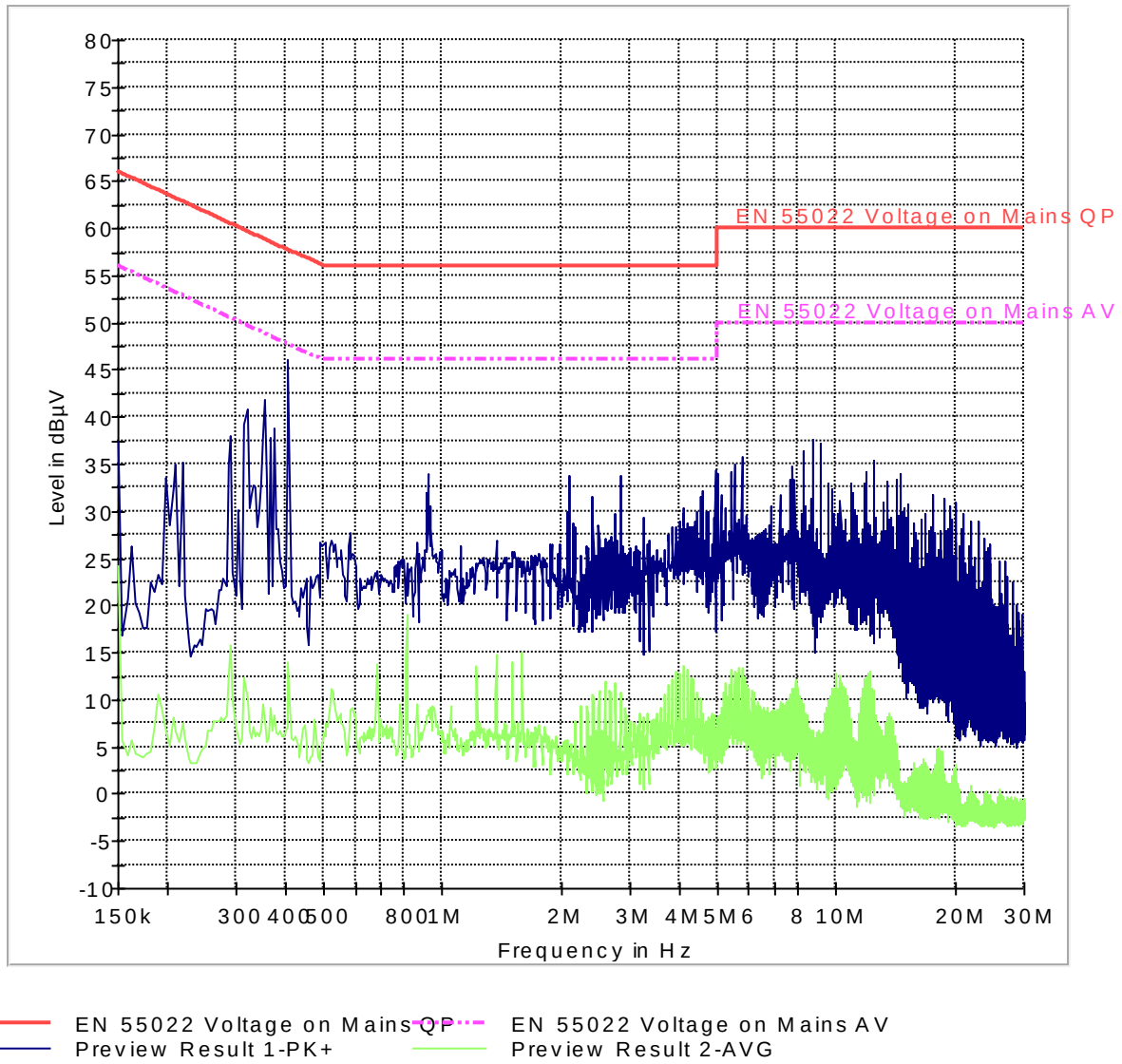
Exploratory measurements shall be used to identify the frequency of the emission that has the highest amplitude relative to the limit by operating the EUT in a range of typical modes of operation, cable positions, and with a typical system equipment configuration and arrangement. For each mode of operation and for each ac power current-carrying conductor, cable manipulation may 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 across all the measured conductors is recorded.

ANSI C63.4 (2009) Section 7.3.4: Final ac power-line conducted emission measurements

Based on the exploratory tests of the EUT, 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. 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 additional variation of the EUT arrangement, cable positions, or EUT mode of operation. If the EUT consists of equipment units that have their own separate ac power connections (e.g., a floor-standing frame 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 the manufacturer provides a power strip to supply all the units making up the EUT, only the conductors in the power cord of the power strip shall be measured.

7.1.3 Test Plots:

Plots below show the worst case representation of emissions into LINE and NEUTRAL.



7.1.4 Test Verdict:

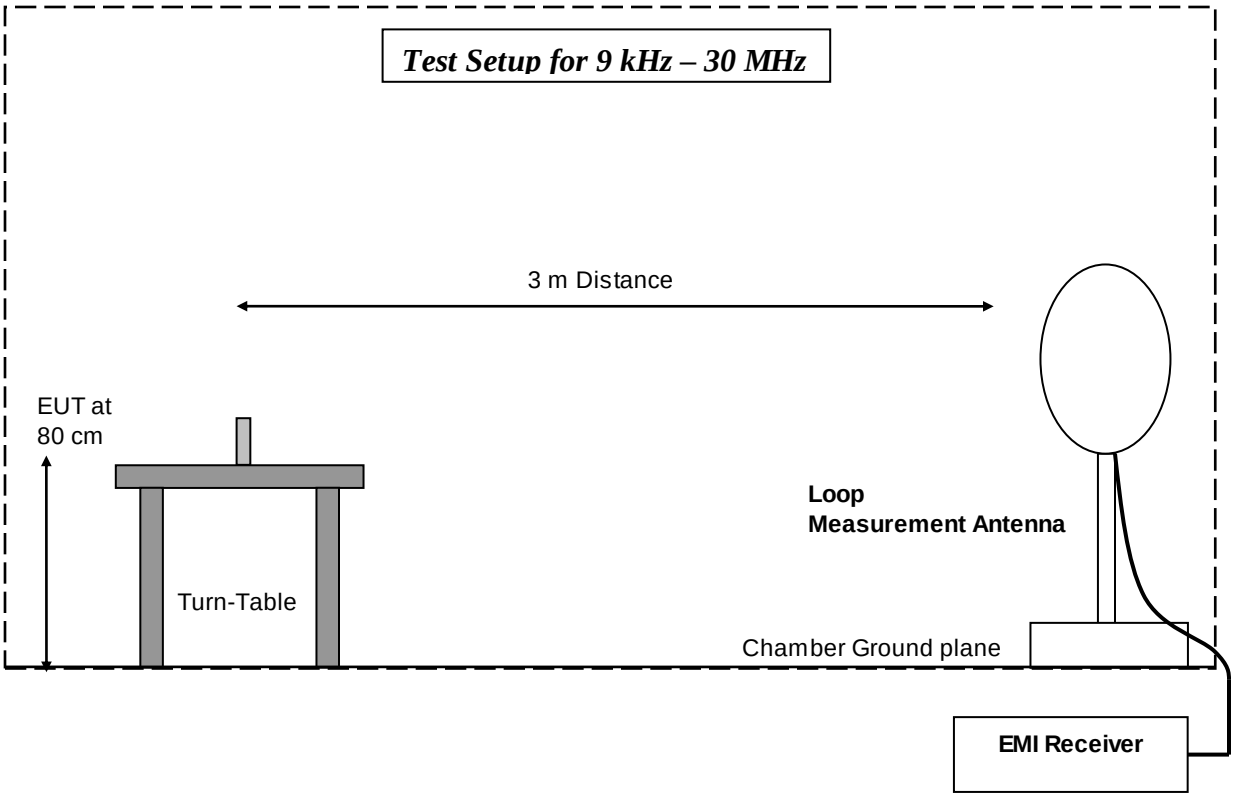
Pass.

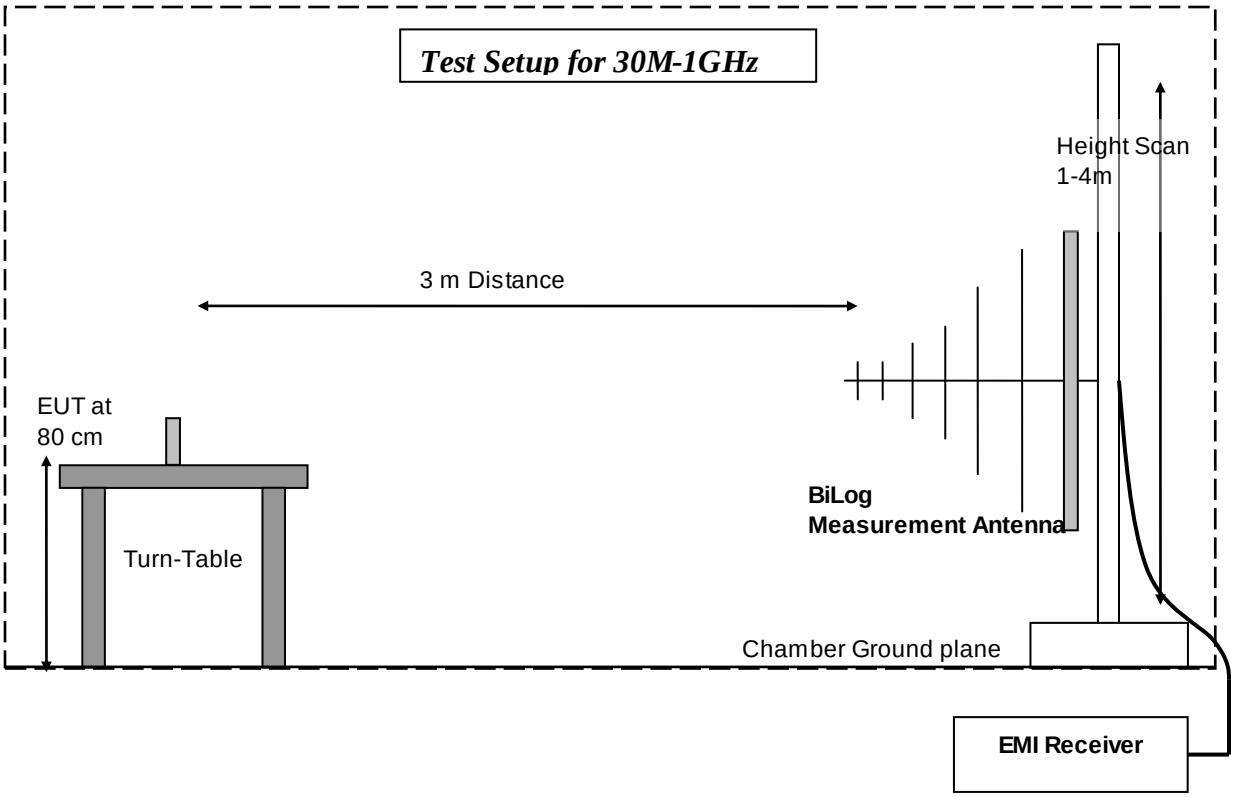
8 Test Equipment and ancillaries used for tests

No.	Equipment Name	Manufacturer	Type/model	Serial No.	Cal Date	Cal Interval
3m Semi- Anechoic Chamber:						
	Turn table	EMCO	2075	N/A	N/A	N/A
	MAPS Position Controller	ETS Lindgren	2092	0004-1510	N/A	N/A
	Antenna Mast	EMCO	2075	N/A	N/A	N/A
	Relay Switch Unit	Rohde&Schwarz	RSU	338964/001	N/A	N/A
	EMI Receiver/Analyzer	Rohde&Schwarz	ESU 40	100251	May 2012	1 Year
	Spectrum Analyzer	Agilent	E4440A	MY46186445	Dec 2012	1 Year
	1500MHz HP Filter	Filtek	HP12/1700	14c48	N/A	N/A
	2800 MHz HP Filter	Filtek	HP12/2800	14C47	N/A	N/A
	Pre-Amplifier	Miteq	JS40010260	340125	N/A	N/A
	Binconilog Antenna	EMCO	3141	0005-1186	Apr 2012	3 Years
	Binconilog Antenna	ETS	3149	J000123908	Feb 2012	3 years
	Horn Antenna	EMCO	3115	35114	Mar 2012	3 Years
	LISN	FCC	50-25-2-08	08014	Jul 2012	1 Year
Ancillary equipment						
	Multimeter	Klein Tools	MM200	001	Apr 2011	2 Years
	Humidity Temperature Logger	Dickson	TM320	03280063	Mar 2012	1 Year
	Digital Barometer	VWR	35519-055	91119547	Nov 2011	2 Years
	DC Power Supply	HP	E3610A	KR83023316	N/A	N/A
	DC Power Supply	Protek	3003B	H012771	N/A	N/A
	Communication Antenna	IBP5-900/1940	Kathrein	N/A	N/A	N/A

Calibration details valid at the time of testing.
Equipment used meets the measurement uncertainty requirements as required per applicable standards for 95% confidence levels.
Calibration due dates, unless defined specifically, falls on the last day of the month.
Items indicated "N/A" for cal status either do not specifically require calibration or is internally characterized before use.

9 Test Setup Diagrams





10 Revision History

Date	Report Name	Changes to report	Report prepared by
2013-08-30	EMC_INTEL-032-13001_NFC	Replaced Plot 6.3.6.	Z. Gray