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TEST REPORT

Report Number: 19081519HKG-001

Application for Original Grant of 47 CFR Part 15 Certification

Single New of RSS-247 Issue 2 Equipment

FCC ID: 2AA2X-15000252

IC: 24439-15000252

PREPARED AND CHECKED BY:	APPROVED BY:
Signed On File Wong Cheuk Ho, Herbert Lead Engineer	Digitally signed by Kenneth Wong Location: Intertek Testing Services Hong Kong Ltd. Wong Kwok Yeung, Kenneth Senior Lead Engineer Date: October 04, 2019

TEST REPORT

GENERAL INFORMATION

Applicant Name:	Mobile Technologies Inc.
Applicant Address:	1050 NE 67th Ave., Hillsboro, Oregon 97124, United States
FCC Specification Standard:	FCC Part 15, October 1, 2018 Edition
FCC ID:	2AA2X-15000252
FCC Model(s):	CX FLEX 4A
IC Specification Standard:	RSS-247 Issue 2, February 2017 RSS-Gen Issue 5 + Amendment 1, March 2019
IC:	24439-15000252
PMN:	CX FLEX 4A
HVIN:	CX FLEX 4A
Type of EUT:	Spread Spectrum Transmitter
Description of EUT:	Merchandise Theft Deterrent System
Serial Number:	N/A
Sample Receipt Date:	September 13, 2019
Date of Test:	September 13, 2019 to October 04, 2019
Report Date:	October 04, 2019
Environmental Conditions:	Temperature: +10 to 40°C Humidity: 10 to 90%

TEST REPORT

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TEST REPORT

EXHIBIT 1 TEST RESULTS SUMMARY & STATEMENT OF COMPLIANCE

1.0 TEST RESULTS SUMMARY & STATEMENT OF COMPLIANCE

1.1 Summary of Test Results

TEST ITEMS	FCC PART 15 SECTION	RSS-247/ RSS-GEN# SECTION	RESULTS	DETAILS SEE SECTION
Antenna Requirement	15.203	8.3#	Pass	2.1
Max. Conducted Output Power (Peak)	15.247(b)(3)&(4)	5.4(d)	Pass	4.1
Min. 6dB RF Bandwidth	15.247(a)(2)	5.1(a)	Pass	4.2
Max. Power Density (average)	15.247(e)	5.1(b)	Pass	4.3
Out of Band Antenna Conducted Emission	15.247(d)	5.5	Pass	4.4
Radiated Emission in Restricted Bands and Spurious Emissions	15.247(d), 15.209 & 15.109	5.5 8.10#	Pass	4.6
AC Power Line Conducted Emission	15.207 & 15.107	8.8#	Pass	4.7

Note: Pursuant to FCC Part 15 Section 15.215(c), the 20dB bandwidth of the emission was contained within the frequency band designated (mentioned as above) which the EUT operated. The effects, if any, from frequency sweeping, frequency hopping, other modulation techniques and frequency stability over expected variations in temperature and supply voltage were considered.

1.2 Statement of Compliance

The equipment under test is found to be complying with the following standard:

FCC Part 15, October 1, 2018 Edition
RSS-247 Issue 2, February 2017
RSS-Gen Issue 5 + Amendment 1, March 2019

TEST REPORT

EXHIBIT 2 GENERAL DESCRIPTION

2.0 GENERAL DESCRIPTION

2.1 Product Description

The Equipment Under Test (Model: CX FLEX 4A) is an Merchandise Theft Deterrent which equippes with a 2.4GHz ZigBee transceiver and a 125kHz RFID module. The EUT is intended for alarm system. The EUT is powered by AC/DC adaptor (Model: W&T AD1806B050025U Input:100-240VAC 50/60Hz 0.25A, Output: 5V 0.25A). All USB ports has no data transfer as declared by applicant.

The antenna(s) used in the EUT is integral, and the test sample is a prototype.

The circuit description is saved with filename: descri.pdf.

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2.2 Test Methodology

Both AC power line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.10 (2013). Preliminary radiated scans and all radiated measurements were performed in radiated emission test sites. All Radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the "**Justification Section**" of this Application. Antenna port conducted measurements were performed according to ANSI C63.10 (2013) and KDB Publication No.558074 D01 v05r01 (11-February-2019). All other measurements were made in accordance with the procedures in 47 CFR Part 2 and RSS-Gen Issue 5 + Amendment 1, March 2019.

2.3 Test Facility

The radiated emission test site and antenna port conducted measurement facility used to collect the radiated data and conductive data are at Workshop No. 3, G/F., World-Wide Industrial Centre, 43-47 Shan Mei Street, Fo Tan, Sha Tin, N.T., Hong Kong. This test facility and site measurement data have been fully placed on file with the FCC and Industry Canada No.: 2042H.

2.4 Related Submittal(s) Grants

This is a single application for certification of a transceiver (ZigBee portion).

TEST REPORT

EXHIBIT 3 SYSTEM TEST CONFIGURATION

3.0 SYSTEM TEST CONFIGURATION

3.1 Justification

For radiated emissions testing, the equipment under test (EUT) was setup to transmit / receive continuously to simplify the measurement methodology. Care was taken to ensure proper power supply voltages during testing. During testing, all cables (if any) were manipulated to produce worst case emissions.

The EUT was powered by a 120VAC.

For the measurements, the EUT was attached to a plastic stand if necessary and placed on the wooden turntable. If the base unit attached to peripherals, they were connected and operational (as typical as possible).

The signal was maximized through rotation and placement in the three orthogonal axes. The antenna height and polarization were varied during the search for maximum signal level. The antenna height was varied from 1 to 4 meters. Radiated emissions were taken at three meters unless the signal level was too low for measurement at that distance. If necessary, a pre-amplifier was used and/or the test was conducted at a closer distance.

For any intentional radiator powered by AC power line, measurements of the radiated signal level of the fundamental frequency component of the emission was performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage.

Radiated emission measurement for transmitter were performed from the lowest radio frequency signal generated in the device which is greater than 9 kHz to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.

Emission that are directly caused by digital circuits in the transmit path and transmitter portion were measured, and the limit are according to FCC Part 15 Section 15.209 / RSS-247 2.5. Digital circuitries used to control additional functions other than the operation of the transmitter are subject to FCC Part 15 Section 15.109 / RSS-247 Section 5.5 Limits.

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3.1 Justification – Cont'd

Detector function for radiated emissions was in peak mode. Average readings, when required, were taken by measuring the duty cycle of the equipment under test and subtracting the corresponding amount in dB from the measured peak readings. A detailed description for the calculation of the average factor can be found in section 4.8.3.

Determination of pulse desensitization was made according to *Hewlett Packard Application Note 150-2, Spectrum Analysis... Pulsed RF.* The effective period (Teff) was referred to Exhibit 4.8.3. With the resolution bandwidth 3MHz and spectrum analyzer IF bandwidth 3dB, the pulse desensitization factor was 0dB.

For AC line conducted emission test, the EUT along with its peripherals were placed on a 1.0m(W)x1.5m(L) and 0.8m in height wooden table and the EUT was adjusted to maintain a 0.4 meter space from a vertical reference plane. The EUT was connected to power mains through a line impedance stabilization network (LISN), which provided 50ohm coupling impedance for measuring instrument. The LISN housing, measuring instrument case, reference ground plane, and vertical ground plane were bounded together. The excess power cable between the EUT and the LISN was bundled.

All connecting cables of EUT and peripherals were manipulated to find the maximum emission.

Different data rates have been tested. Worst case is reported only.

All relevant operation modes have been tested, and the worst-case data is included in this report.

For simultaneous transmission, both Zigbee and 125kHz RFID portions are also switched on when taking radiated emission for determining worst-case spurious emission.

3.2 EUT Exercising Software

The EUT exercise program (if any) used during radiated and conducted testing was designed to exercise the various system components in a manner similar to a typical use.

TEST REPORT

3.3 Details of EUT and Description of Accessories

Details of EUT:

An AC/DC adaptor was used to power the device.

(1) Model: W&T AD1806B050025U Input:100-240VAC 50/60Hz 0.25A, Output: 5V 0.25A). (Provided by Applicant)

Description of Accessories:

(1) 1 X USB-C sensor cable of 30cm in length
(2) 3 X Flexi-Disc Sensor cable of 64cm in length
(Provided by applicant)
(3) 1 X smartphone (for terminating the USB-C sensor cable of 30cm in length)
(Provided by Intertek)

3.4 Measurement Uncertainty

When determining of the test conclusion, the Measurement Uncertainty of test at a level of confidence of 95% has been considered. The values of the Measurement uncertainty for radiated emission test and RF conducted measurement test are ± 5.3dB and ±0.99dB respectively. The value of the Measurement uncertainty for conducted emission test is ±4.2dB.

Uncertainty and Compliance - Unless the standard specifically states that measured values are to be extended by the measurement uncertainty in determining compliance, all compliance determinations are based on the actual measured value.

TEST REPORT

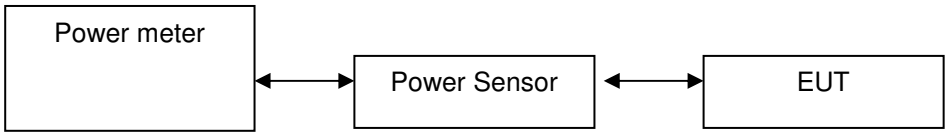
EXHIBIT 4 TEST RESULTS

4.0 TEST RESULTS

4.1 Maximum Conducted (peak) Output Power at Antenna Terminals

RF Conduct Measurement Test Setup

The figure below shows the test setup, which is utilized to make these measurements.



The antenna port of the EUT was connected to the input of a spectrum analyzer.

☒ The antenna power of the EUT was connected to the input of a power meter. Power was read directly and cable loss correction was added to the reading to the obtain power at the EUT antenna terminals. The measurement procedure 9.1.3 was used.

☐ The EUT should be configured to transmit continuously (at a minimum duty cycle of 98%) at full power over the measurement duration. The measurement procedure AVG1 was used.

Antenna Gain = -1 dBi

Frequency (MHz)	Output in dBm	Output in mWatt
Low Channel: 2405	-3.65	0.43
Middle Channel: 2445	-2.52	0.56
High Channel: 2480	-2.00	0.63

TEST REPORT

4.1 Maximum Conducted Output Power at Antenna Terminals – Cont'd

Cable loss : 0.5 dB External Attenuation : 0 dB

Cable loss, external attenuation: ☒ included in OFFSET function
☐ added to SA raw reading

max. conducted (peak) output level = -2.0 dBm

Limits:
☒ 1W (30dBm) for antennas with gains of 6dBi or less

☐ ___W (___dBm) for antennas with gains more than 6dBi

The plots of conducted output power are saved as below.

TEST REPORT

4.2 Minimum 6dB RF Bandwidth

The antenna port of the EUT was connected to the input of a spectrum analyzer. The EBW measurement procedure was used. A PEAK output reading was taken, a DISPLAY line was drawn 6dB lower than PEAK level. The 6dB bandwidth was determined from where the channel output spectrum intersected the display line.

Frequency (MHz)	6dB Bandwidth (MHz)
Low Channel: 2405	1.6
Middle Channel: 2445	1.6
High Channel: 2480	1.6

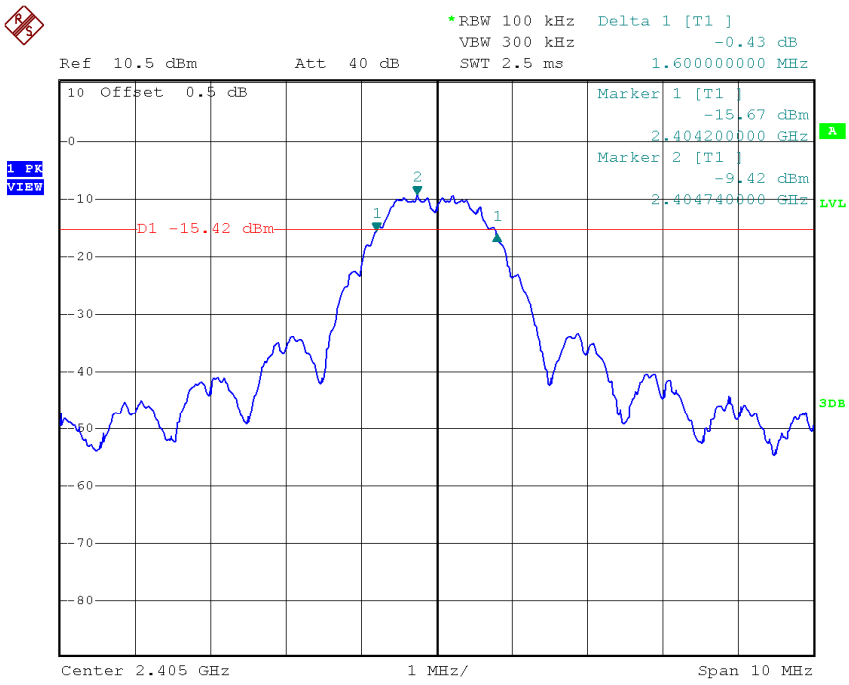
Limits
6 dB bandwidth shall be at least 500kHz

The plots of 6dB RF bandwidth are saved as below.

TEST REPORT

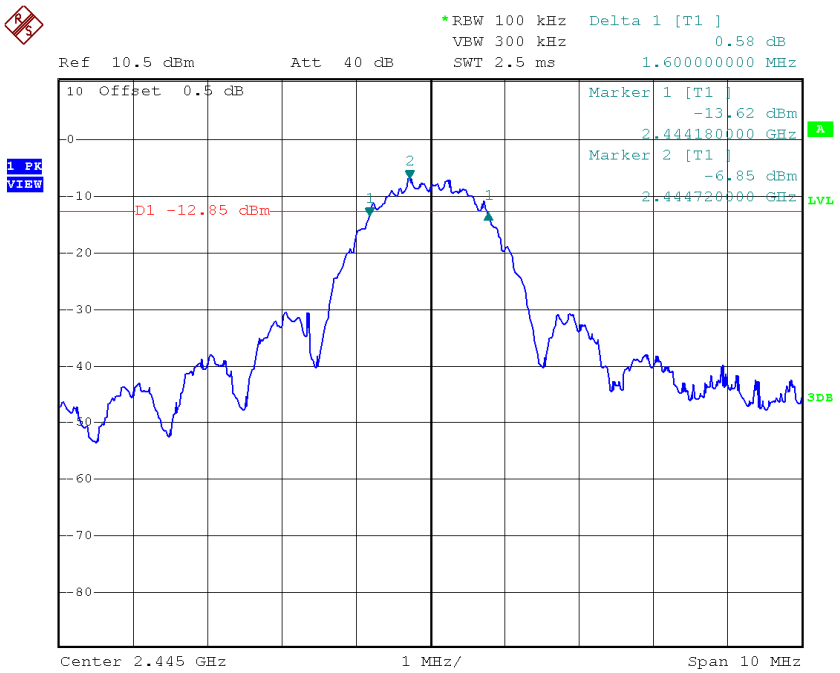
PLOTS OF 6dB RF BANDWIDTH

Lowest Channel



Date: 3.OCT.2019 05:53:16

Middle Channel

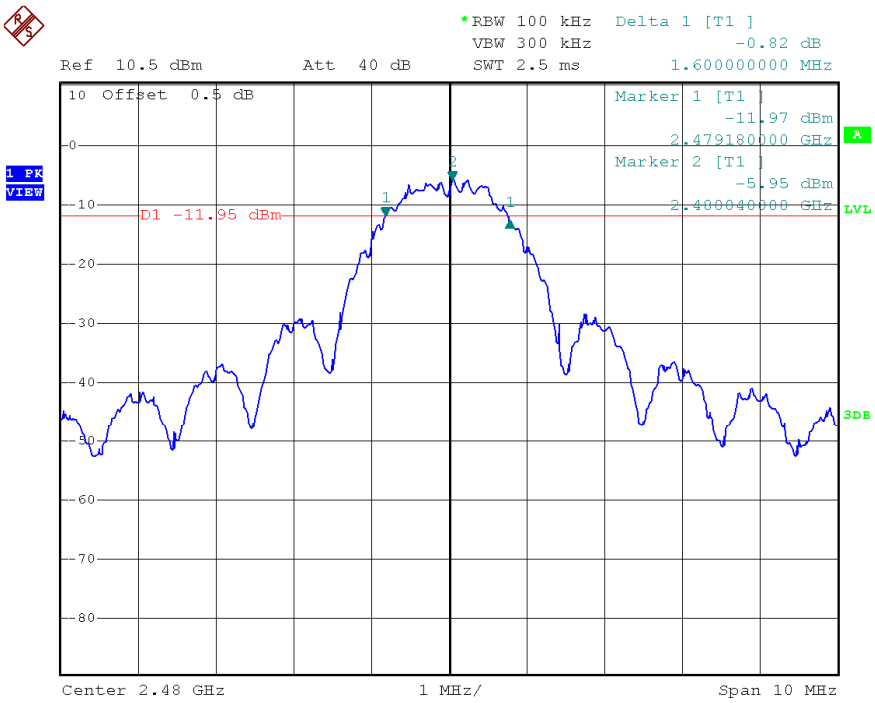


Date: 3.OCT.2019 08:19:54

TEST REPORT

PLOTS OF 6dB RF BANDWIDTH

Highest Channel



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4.3 Maximum Power Spectral Density

Antenna output of the EUT was coupled directly to spectrum analyzer. The measurement procedure 10.2 PKPSD was used. If an external attenuator and/or cable was used, these losses are compensated for using the OFFSET function of the analyser.

Frequency (MHz)		PSD in 100kHz (dBm)
Low Channel:	2405	-8.35
Middle Channel:	2445	-7.06
High Channel:	2480	-5.85

Cable Loss: 0.5 dB

Limit:
8dBm

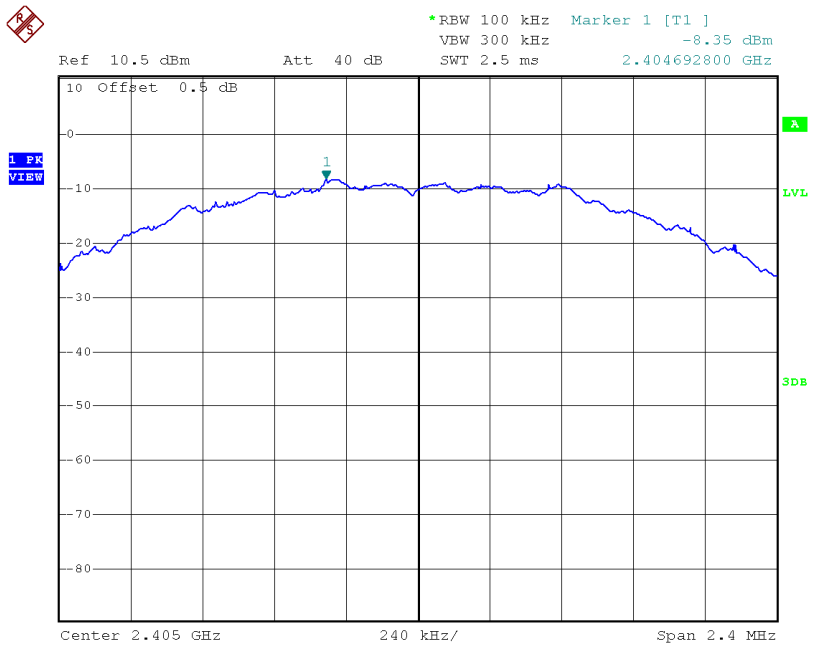
The plots of power spectral density are as below.

4.3 Maximum Power Spectral Density

TEST REPORT

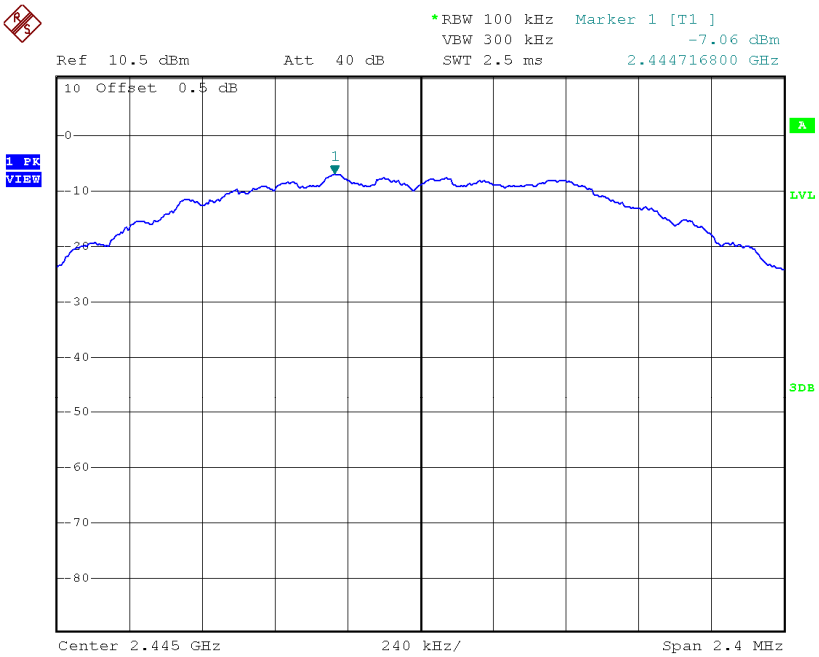
PLOTS OF POWER SPECTRAL DENSITY (100kHz RBW)

Lowest channel



Date: 3.OCT.2019 08:23:41

Middle channel

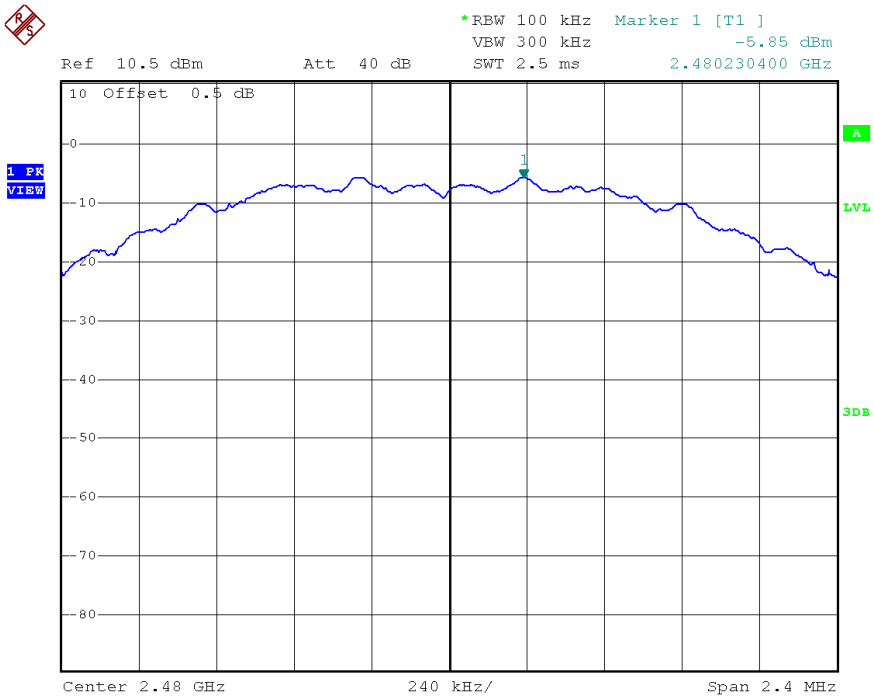


Date: 3.OCT.2019 08:25:03

TEST REPORT

PLOTS OF POWER SPECTRAL DENSITY (100kHz RBW)

Highest channel



Date: 3.OCT.2019 08:26:54

TEST REPORT

4.4 Out of Band Conducted Emissions

The maximum conducted (peak) output power was used to demonstrate compliance as described in 9.1. Then the display line (in red) shown in the following plots denotes the limit at 20dB below maximum measured in-band peak PSD level in 100 KHz bandwidth.

The measurement procedures under sections 11 of KDB558074 D01 v05r01 (11-February-2019) were used.

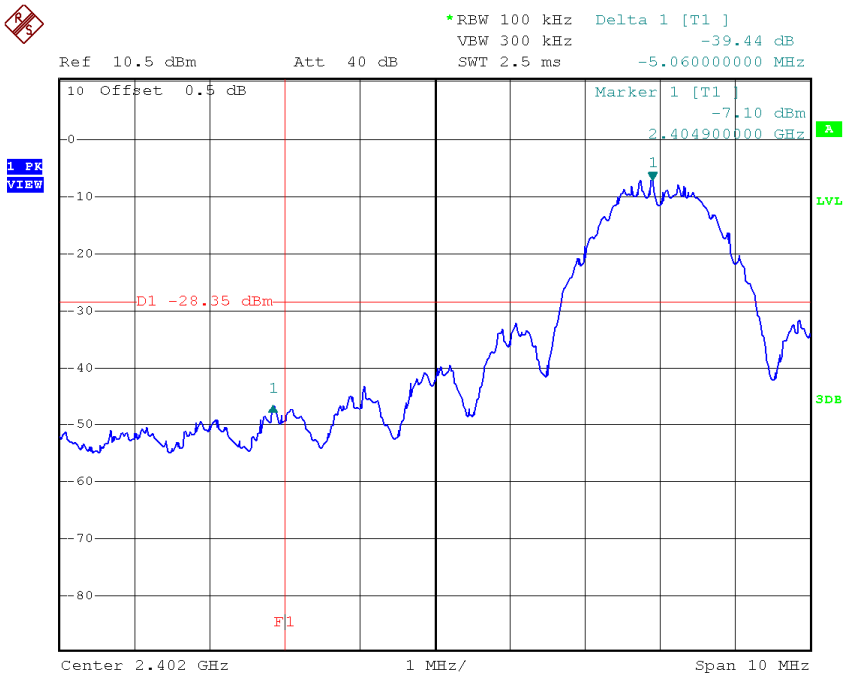
Furthermore, delta measurement technique for measuring bandedge emissions was incorporated in the test of the edge at 2483.5MHz.

Limits:
All spurious emission and up to the tenth harmonic was measured and they were found to be at least 20dB below the maximum measured in-band peak PSD level.

TEST REPORT

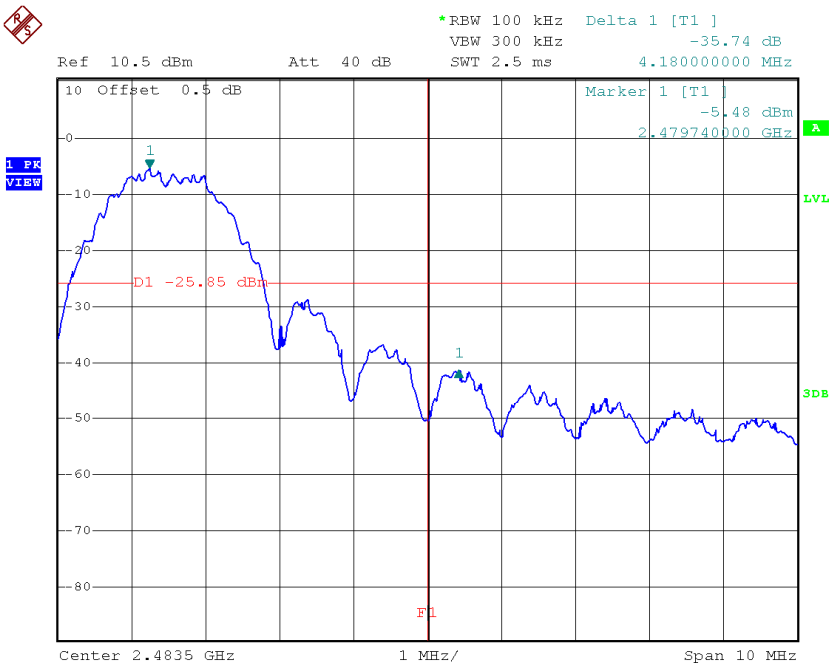
PLOTS OF OUT OF BAND CONDUCTED EMISSIONS

Lowest Channel, Bandedge



Date: 3.OCT.2019 08:30:53

Highest Channel, Bandedge

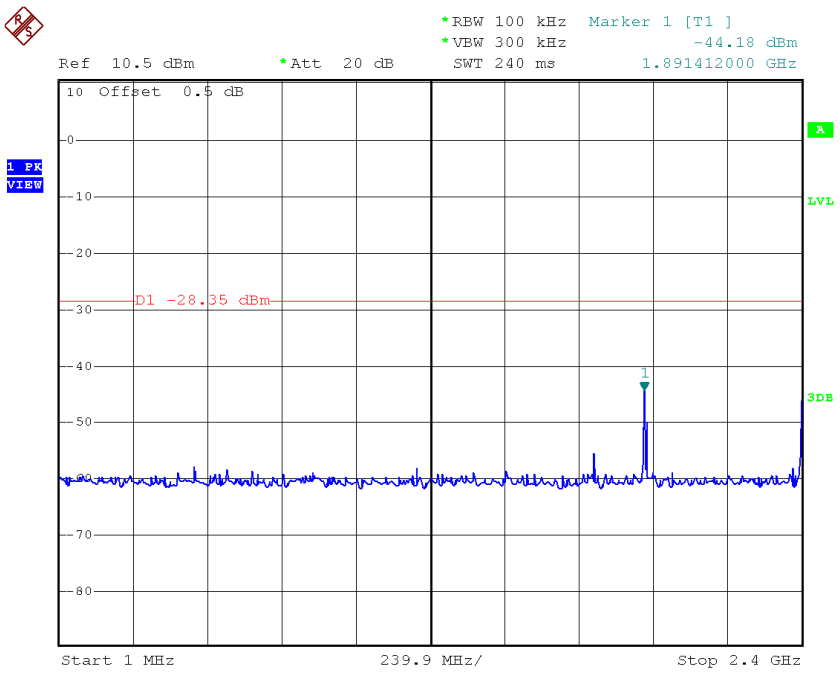


Date: 3.OCT.2019 08:34:31

TEST REPORT

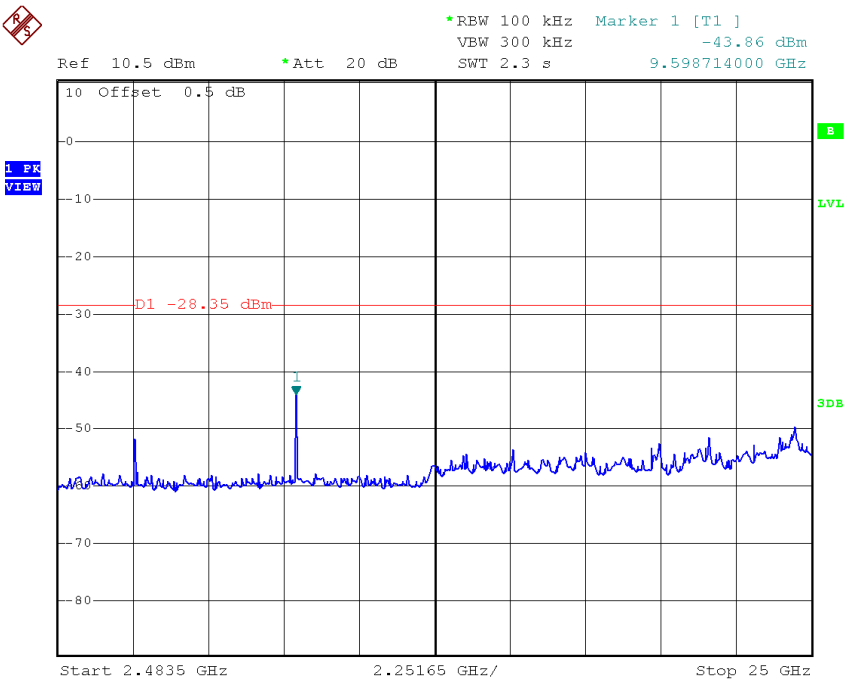
PLOTS OF OUT OF BAND CONDUCTED EMISSIONS

Lowest Channel, Plot A



Date: 3.OCT.2019 17:04:08

Lowest Channel, Plot B



Date: 3.OCT.2019 17:05:24

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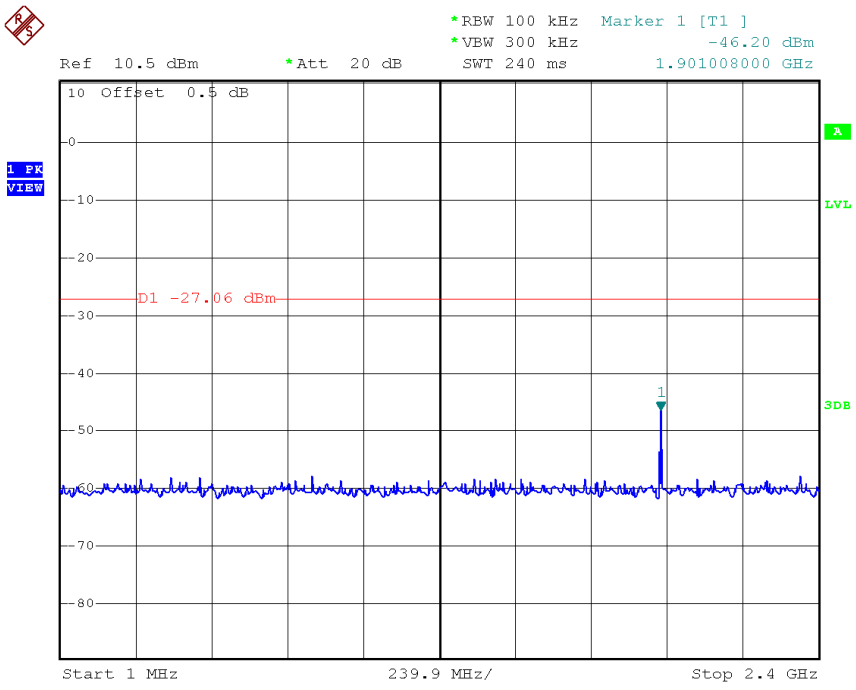
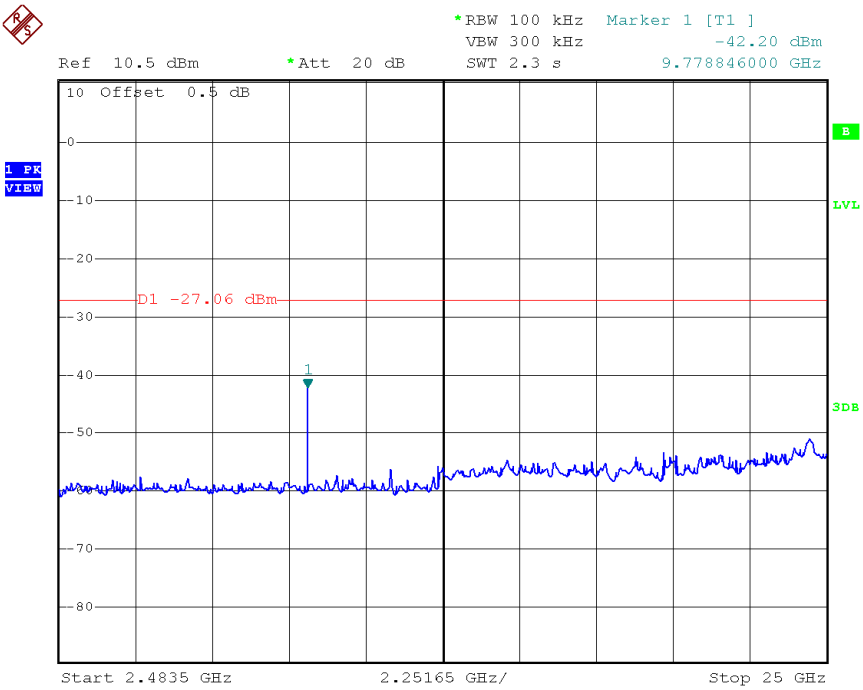
PLOTS OF OUT OF BAND CONDUCTED EMISSIONS

Middle Channel, Plot A



Date: 3.OCT.2019 17:07:00

Middle Channel, Plot B

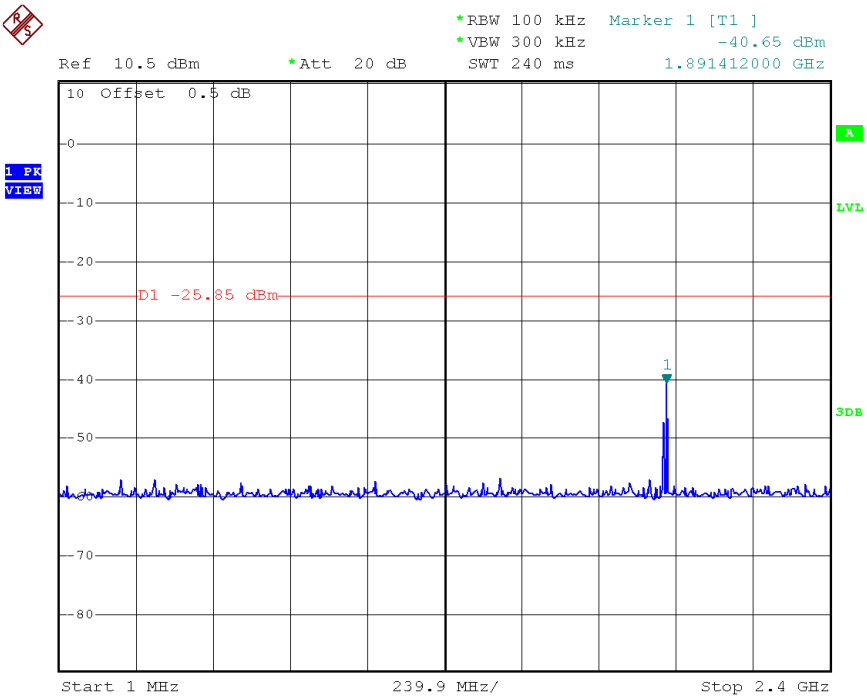


Date: 3.OCT.2019 17:08:02

TEST REPORT

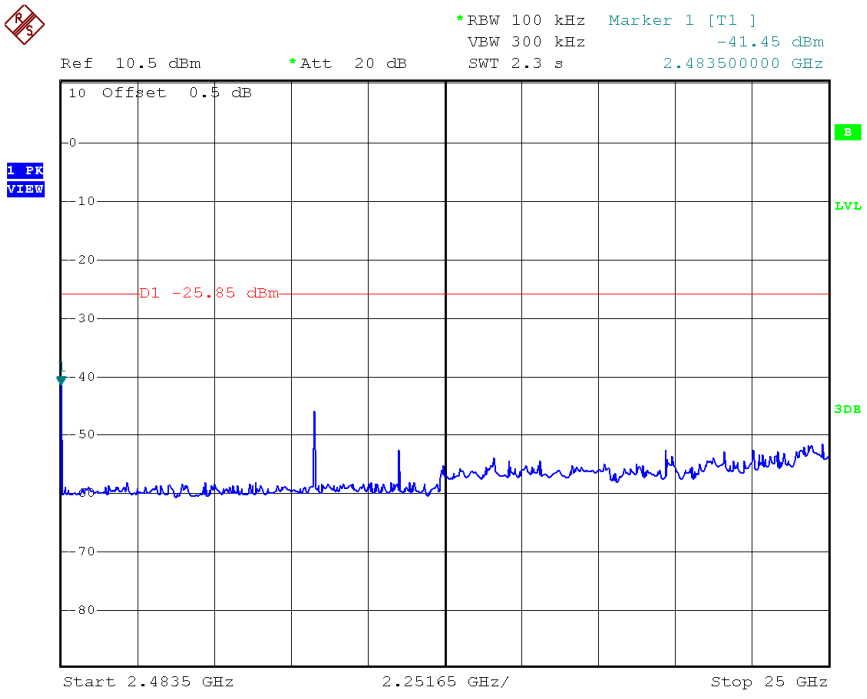
PLOTS OF OUT OF BAND CONDUCTED EMISSIONS

Highest Channel, Plot A



Date: 3.OCT.2019 17:10:53

Highest Channel, Plot B



Date: 3.OCT.2019 17:09:09

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4.5 Field Strength Calculation

The field strength is calculated by adding the reading on the Spectrum Analyzer to the factors associated with preamplifiers (if any), antennas, cables, pulse desensitization and average factors (when specified limit is in average and measurements are made with peak detectors). A sample calculation is included below.

FS = RA + AF + CF - AG + PD + AV

Where FS = Field Strength in dBµV/m
RA = Receiver Amplitude (including preamplifier) in dBµV
CF = Cable Attenuation Factor in dB
AF = Antenna Factor in dB
AG = Amplifier Gain in dB
PD = Pulse Desensitization in dB
AV = Average Factor in -dB

In the radiated emission table which follows, the reading shown on the data table may reflect the preamplifier gain. An example of the calculations, where the reading does not reflect the preamplifier gain, follows:

FS = RA + AF + CF - AG + PD + AV

Example
Assume a receiver reading of 62.0 dBµV is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29.0 dB is subtracted. The pulse desensitization factor of the spectrum analyzer is 0.0 dB, and the resultant average factor is -10.0 dB. The net field strength for comparison to the appropriate emission limit is 32.0 dBµV/m. This value in dBµV/m is converted to its corresponding level in µV/m.

RA = 62.0 dBµV
AF = 7.4 dB
CF = 1.6 dB
AG = 29.0 dB
PD = 0.0 dB
AV = -10 dB

FS = 62.0 + 7.4 + 1.6 – 29.0 + 0.0 + (-10.0) = 32.0 dBµV/m

Level in µV/m = Common Antilogarithm [(32.0 dBµV/m)/20] = 39.8 µV/m

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4.6 Transmitter Radiated Emissions in Restricted Bands and Spurious Emissions

Data is included of the worst case configuration (the configuration which resulted in the highest emission levels). A sample calculation, configuration photographs and data tables of the emissions are included.

The data on the following pages list the significant emission frequencies, the limit and the margin of compliance.

4.6.1 Radiated Emission Configuration Photograph

Worst Case Restricted Band Radiated Emission
at

2483.500 MHz

The worst case radiated emission configuration photographs are saved with filename: config photos.pdf

4.6.2 Radiated Emission Data

The data in tables 1-4 list the significant emission frequencies, the limit and the margin of compliance.

Judgement -

Passed by 5.4 dB margin

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RADIATED EMISSION DATA

Mode: TX-Channel 2405MHz (Zigbee)

Table 1

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Average (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
H	***2390.000***	***40.4***	***33***	***29.4***	***36.8***	***54.0***	***-17.2***
H	***4810.000***	***28.9***	***33***	***34.9***	***30.8***	***54.0***	***-23.2***
H	***12025.000***	***23.3***	***33***	***40.5***	***30.8***	***54.0***	***-23.2***

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
H	***2390.000***	***52.4***	***33***	***29.4***	***48.8***	***74.0***	***-25.2***
H	***4810.000***	***36.5***	***33***	***34.9***	***38.4***	***74.0***	***-35.6***
H	***12025.000***	***31.0***	***33***	***40.5***	***38.5***	***74.0***	***-35.5***

NOTES:

1. Peak detector is used for the emission measurement.
2. Average measurement method is according to ANSI C63.10.
3. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
4. Negative value in the margin column shows emission below limit.
5. Horn antenna is used for the emission over 1000MHz.
6. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 Section 15.205 / RSS-Gen Section 8.10.

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Mode: TX-Channel 2445MHz (Zigbee)

Table 2

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Average (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
H	***4890.000***	***27.7***	***33***	***34.9***	***29.6***	***54.0***	***-24.4***
H	***7335.000***	***25.3***	***33***	***37.9***	***30.2***	***54.0***	***-23.8***
H	***12225.000***	***23.3***	***33***	***40.5***	***30.8***	***54.0***	***-23.2***

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
H	***4890.000***	***36.5***	***33***	***34.9***	***38.4***	***74.0***	***-35.6***
H	***7335.000***	***33.7***	***33***	***37.9***	***38.6***	***74.0***	***-35.4***
H	***12225.000***	***31.2***	***33***	***40.5***	***38.7***	***74.0***	***-35.3***

NOTES:

1. Peak detector is used for the emission measurement.
2. Average measurement method is according to ANSI C63.10.
3. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
4. Negative value in the margin column shows emission below limit.
5. Horn antenna is used for the emission over 1000MHz.
6. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 Section 15.205 / RSS-Gen Section 8.10.

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Mode: TX-Channel 2480MHz (Zigbee)

Table 3

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Average (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
H	***2483.500***	***52.2***	***33***	***29.4***	***48.6***	***54.0***	***-5.4***
H	***4960.000***	***32.9***	***33***	***34.9***	***34.8***	***54.0***	***-19.2***
H	***7440.000***	***32.7***	***33***	***37.9***	***37.6***	***54.0***	***-16.4***
H	***12400.000***	***34.0***	***33***	***40.5***	***41.5***	***54.0***	***-12.5***

Polari-zation	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m - Peak (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
H	***2483.500***	***54.4***	***33***	***29.4***	***50.8***	***74.0***	***-23.2***
H	***4960.000***	***43.9***	***33***	***34.9***	***45.8***	***74.0***	***-28.2***
H	***7440.000***	***44.9***	***33***	***37.9***	***49.8***	***74.0***	***-24.2***
H	***12400.000***	***45.3***	***33***	***40.5***	***52.8***	***74.0***	***-21.2***

NOTES:

1. Peak detector is used for the emission measurement.
2. Average measurement method is according to ANSI C63.10.
3. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
4. Negative value in the margin column shows emission below limit.
5. Horn antenna is used for the emission over 1000MHz.
6. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 Section 15.205 / RSS-Gen Section 8.10.

TEST REPORT

Mode: 125kHz RFID Reader + Zigbee Operating

Table 4

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-amp (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
V	*63.390*	*33.0*	*16*	*9.0*	*26.0*	*40.0*	*-14.0*
V	***74.482***	***32.5***	***16***	***6.0***	***22.5***	***40.0***	***-17.5***
V	85.816	27.6	16	8.0	19.6	40.0	-20.4
H	**114.090**	**28.2**	**16**	**14.0**	**26.2**	**43.5**	**-17.3**
H	***125.790***	***29.5***	***16***	***14.0***	***27.5***	***43.5***	***-16.0***
H	***275.696***	***19.0***	***16***	***22.0***	***25.0***	***46.0***	***-21.0***

NOTES:
1. Quasi-Peak detector is used for the emission measurement.

2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.

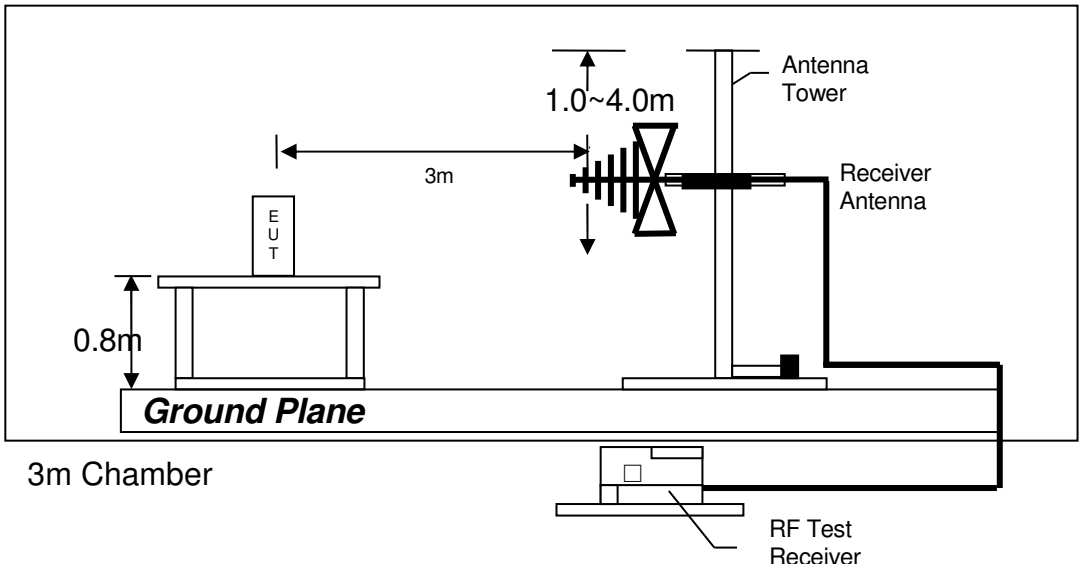
3. Negative value in the margin column shows emission below limit.

4. Emission (the row indicated by ***bold italic***) within the restricted band meets the requirement of FCC Part 15 Section 15.205 / RSS-Gen Section 8.10.

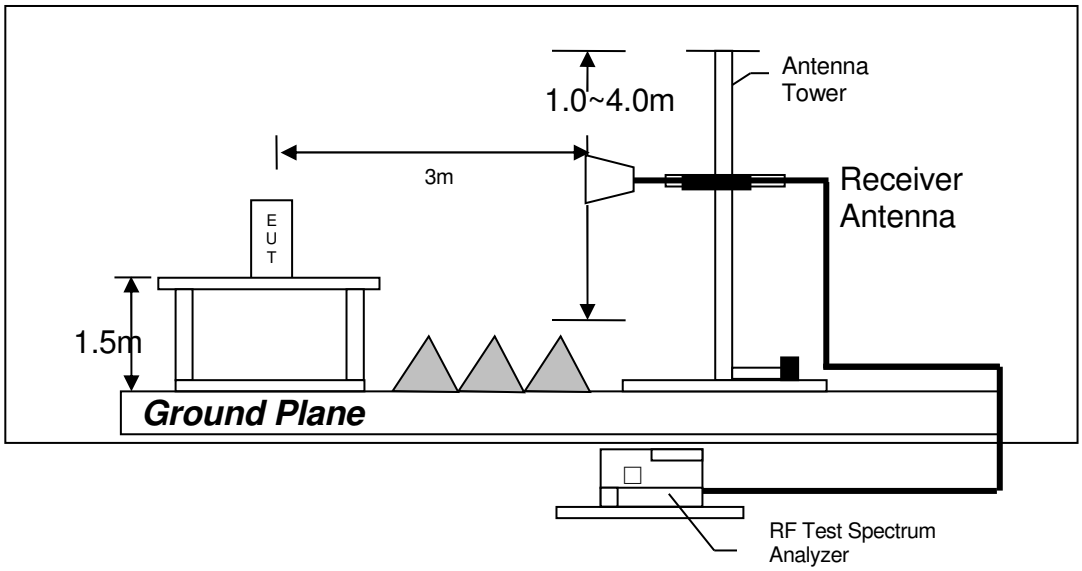
TEST REPORT

4.6.3 Radiated Emission Test Setup

The figure below shows the test setup, which is utilized to make these measurements.



Test setup of radiated emissions up to 1GHz



Test setup of radiated emissions above 1GHz

TEST REPORT

4.6.4 Transmitter Duty Cycle Calculation

Not applicable – No average factor is required.

TEST REPORT

4.7 AC Power Line Conducted Emission

☐ Not applicable – EUT is only powered by battery for operation.

☒ EUT connects to AC power line. Emission Data is listed in following pages.

☐ Base Unit connects to AC power line and has transmission. Handset connects to AC power line but has no transmission. Emission Data of Base Unit is listed in following pages.

4.7.1 AC Power Line Conducted Emission Configuration Photograph

Worst Case Line-Conducted Configuration
at

0.501 MHz

The worst case line conducted configuration photographs are attached in the Appendix and saved with filename: config photos.pdf

4.7.2 AC Power Line Conducted Emission Data

The plot(s) and data in the following pages list the significant emission frequencies, the limit and the margin of compliance.

Passed by 17.0 dB margin

TEST REPORT

AC POWER LINE CONDUCTED EMISSION

Worst Case: 125kHz RFID Reader + Zigbee Operating

EDIT PEAK LIST (Final Measurement Results)

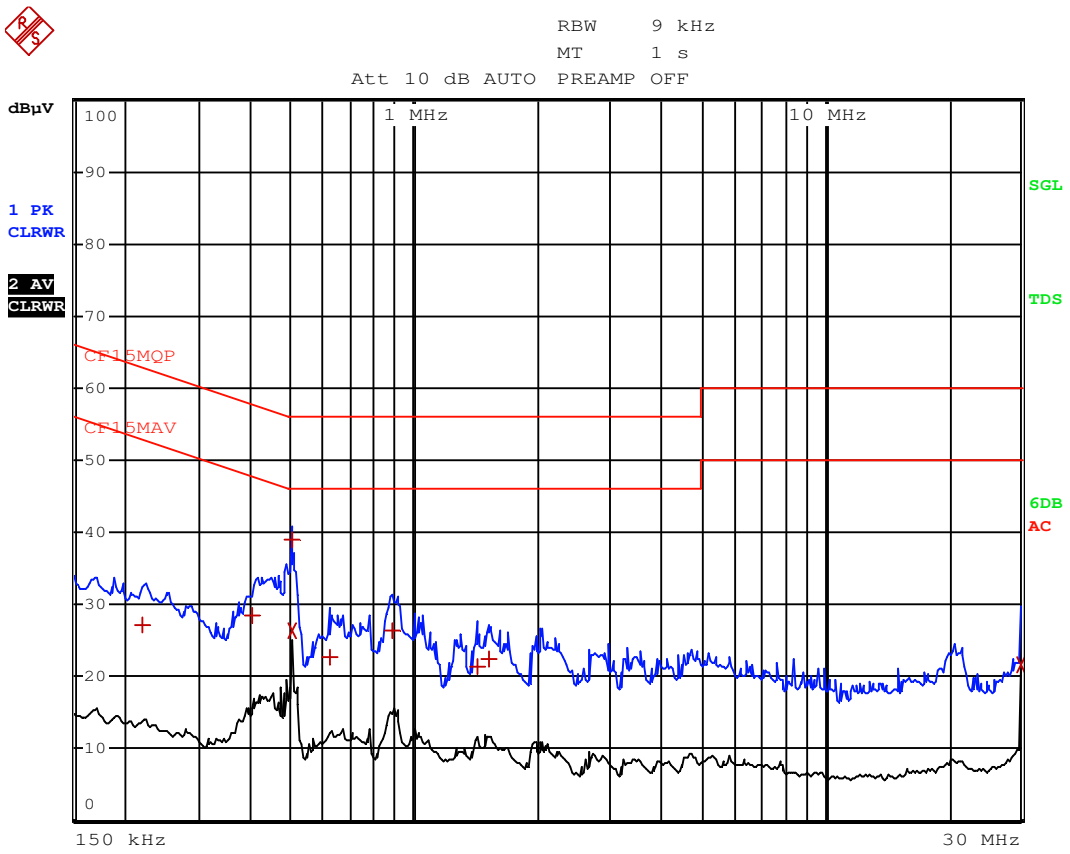
Trace1: CF15MQP
Trace2: CF15MAV
Trace3: ---

	TRACE	FREQUENCY	LEVEL dBµV		DELTA LIMIT dB
1	Quasi Peak	222 kHz	27.09	L1	-35.65
1	Quasi Peak	402 kHz	28.47	L1	-29.33
1	Quasi Peak	501 kHz	38.99	N	-17.00
2	CISPR Average	501 kHz	26.26	N	-19.73
1	Quasi Peak	622.5 kHz	22.69	N	-33.30
1	Quasi Peak	883.5 kHz	26.47	L1	-29.52
1	Quasi Peak	1.4325 MHz	21.31	L1	-34.68
1	Quasi Peak	1.527 MHz	22.33	L1	-33.66
2	CISPR Average	29.9985 MHz	21.62	N	-28.38

Date: 25.SEP.2019 16:24:22

TEST REPORT

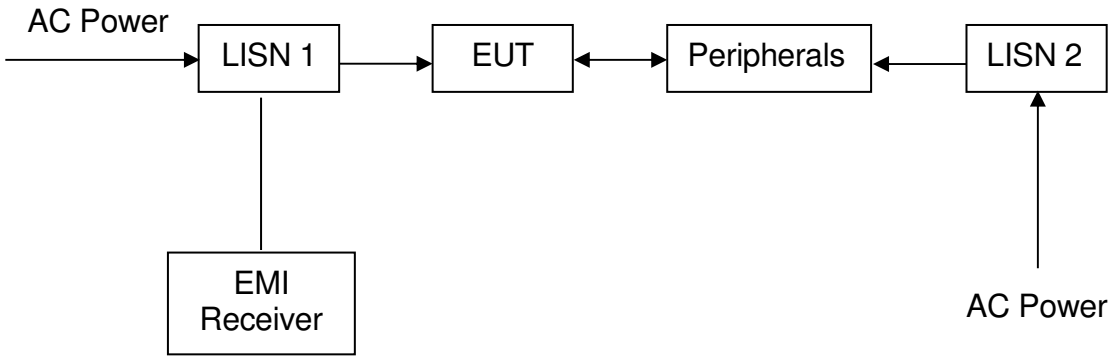
Worst Case: 125kHz RFID Reader + Zigbee Operating



Date: 25.SEP.2019 16:24:48

TEST REPORT

4.7.3 Conducted Emission Test Setup

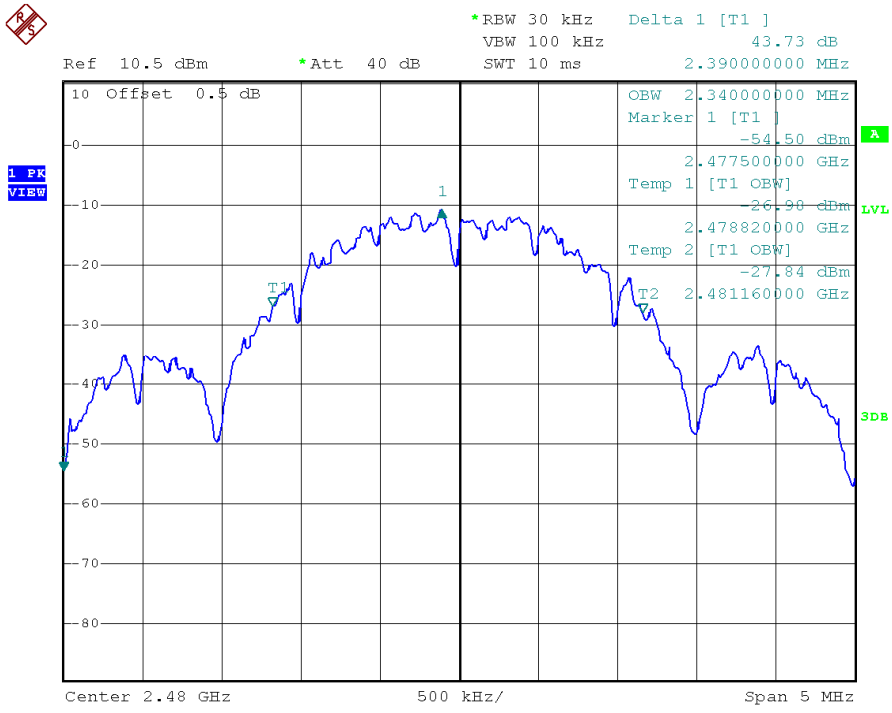


TEST REPORT

Occupied Bandwidth Results: (ZigBee)

(ZigBee)	Occupied Bandwidth (MHz)
Low Channel: 2405MHz	2.30
Middle Channel: 2445MHz	2.32
High Channel: 2480MHz	2.34

The worst case is shown as below



TEST REPORT

EXHIBIT 5 EQUIPMENT LIST

5.0 EQUIPMENT LIST

1) Radiated Emissions Test

Equipment	EMI Test Receiver	Spectrum Analyzer	Biconical Antenna
Registration No.	EW-3156	EW-2253	EW-0571
Manufacturer	R&S	R&S	EMCO
Model No.	ESR26	FSP40	3104C
Calibration Date	November 19, 2018	November 27, 2018	July 23, 2019
Calibration Due Date	November 19, 2019	November 27, 2019	January 23, 2021

Equipment	Log Periodic Antenna	Double Ridged Guide Antenna	14m Double Shield RF Cable (20MHz to 6GHz)
Registration No.	EW-1042	EW-1133	EW-2505
Manufacturer	EMCO	EMCO	RADIALL
Model No.	3148	3115	nm / br5d / sma 14m
Calibration Date	April 04, 2018	November 29, 2018	October 27, 2018
Calibration Due Date	October 04, 2019	November 29, 2020	October 27, 2019

Equipment	RF Cable 14m (1GHz to 26.5GHz)	Solid State Low Noise Preamplifier Assembly (1 - 18)GHz	Pyramidal Horn Antenna
Registration No.	EW-2781	EW-3229	EW-0905
Manufacturer	GREATBILLION	BONN ELEKTRO	EMCO
Model No.	SMA m/SHF5MPU /SMA m ra14m,26G	BLMA 0118-5G	3160-09
Calibration Date	October 27, 2018	June 28, 2019	July 23, 2019
Calibration Due Date	October 27, 2019	June 28, 2020	January 23, 2021

Equipment	Active Loop H-field (9kHz to 30MHz)	Notch Filter (cutoff frequency 2.4GHz to 2.5GHz)
Registration No.	EW-3326	EW-2213
Manufacturer	EMCO	MICROTRONICS
Model No.	6502	BRM50701-02
Calibration Date	March 21, 2019	July 12, 2019
Calibration Due Date	September 21, 2020	May 13, 2020

TEST REPORT

2) Conductive Measurement Test

Equipment	RF Power Meter with Power Sensor (N1921A)	RF Cable (up to 40GHz) 1.5m length	SPECTRUM ANALYZER
Registration No.	EW-2270	EW-3104	EW-2253
Manufacturer	AGILENTTECH	N/A	ROHDESCHWARZ
Model No.	N1911A	SMA-M to SMA-M	FSP40
Calibration Date	March 09, 2019	August 26, 2019	November 27, 2018
Calibration Due Date	March 09, 2020	August 26, 2020	November 27, 2019

3) Bandedge/Bandwidth Measurement

EQUIPMENT	RF Cable (up to 40GHz) 1.5m length	SPECTRUM ANALYZER
Registration No.	EW-3104	EW-2253
Manufacturer	N/A	ROHDESCHWARZ
Model No.	SMA-M to SMA-M	FSP40
Calibration Date	August 26, 2019	November 27, 2018
Calibration Due Date	August 26, 2020	November 27, 2019

TEST REPORT

4) Conducted Emissions Test

Equipment	EMI Test Receiver	RF Cable 9kHz to 1000MHz	Artificial Mains Network
Registration No.	EW-2500	EW-3170	EW-0192
Manufacturer	ROHDESCHWARZ	N/A	ROHDESCHWARZ
Model No.	ESCI	9kHz to 1000MHz	ESH3-Z5
Calibration Date	November 28, 2018	May 28, 2019	March 11, 2019
Calibration Due Date	November 28, 2019	May 28, 2020	March 11, 2020

- End of Report -