



International Certification Corp.

No. 3-1, Lane 6, Wen San 3rd St., Kwei Shan Hsiang, Tao Yuan Hsien 333, Taiwan, R.O.C.

Tel: 886-3-271-8666

Fax: 886-3-318-0155

# FCC Test Report

**FCC ID** : VQK-F01F  
**Equipment** : Mobile Phone  
**Model No.** : F-01F  
**Brand Name** : FUJITSU  
**Applicant** : FUJITSU LIMITED  
**Address** : 1-1, Kamikodanaka 4-chome, Nakahara-ku,  
Kawasaki 211-8588, Japan  
**Standard** : 47 CFR FCC Part 15.247  
**Received Date** : Jul. 01, 2013  
**Tested Date** : Aug. 15 ~ Aug. 24, 2013

We, International Certification Corp., would like to declare that the tested sample has been evaluated and in compliance with the requirement of the above standards. The test results contained in this report refer exclusively to the product. It may be duplicated completely for legal use with the approval of the applicant. It shall not be reproduced except in full without the written approval of our laboratory.

Approved & Reviewed by:

  
Gary Chang / Manager





## Table of Contents

<b>1</b>	<b>GENERAL DESCRIPTION .....</b>	<b>5</b>
1.1	Information.....	5
1.2	Local Support Equipment List .....	7
1.3	Test Setup Chart .....	7
1.4	The Equipment List .....	8
1.5	Test Standards .....	9
1.6	Measurement Uncertainty .....	10
<b>2</b>	<b>TEST CONFIGURATION .....</b>	<b>11</b>
2.1	Testing Condition .....	11
2.2	The Worst Test Modes and Channel Details .....	11
<b>3</b>	<b>TRANSMITTER TEST RESULTS.....</b>	<b>12</b>
3.1	Conducted Emissions.....	12
3.2	6dB and Occupied Bandwidth .....	15
3.3	RF Output Power .....	17
3.4	Power Spectral Density .....	19
3.5	Unwanted Emissions into Restricted Frequency Bands .....	21
3.6	Unwanted Emissions into Non-Restricted Frequency Bands .....	31



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## Release Record

Report No.	Version	Description	Issued Date
FR370110AE	Rev. 01	Initial issue	Sep. 03, 2013



## Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.207	Conducted Emissions	[dBuV]: 0.484MHz 28.82 (Margin -17.45dB) - AV	Pass
15.247(d) 15.209	Radiated Emissions	[dBuV/m at 3m]: 30 MHz 29.00 (Margin -11.00dB) - PK	Pass
15.247(b)(3)	Fundamental Emission Output Power	Power [dBm]: 0.80	Pass
15.247(a)(2)	6dB Bandwidth	Meet the requirement of limit	Pass
15.247(e)	Power Spectral Density	Meet the requirement of limit	Pass
15.203	Antenna Requirement	Meet the requirement of limit	Pass



# 1 General Description

## 1.1 Information

### 1.1.1 Product Details

Product Name	Mobile Phone
Brand Name	FUJITSU
Model Name	F-01F
IMEI Code	357611050019929 & 357611050023293
H/W Version	V2.1.0
S/W Version	R19.8e

### 1.1.2 Specification of the Equipment under Test (EUT)

RF General Information				
Frequency Range (MHz)	Bluetooth Mode	Ch. Freq. (MHz)	Channel Number	Data Rate
2400-2483.5	BT LE	2402-2480	0-39 [40]	1 Mbps

### 1.1.3 Antenna Details

Ant. No.	Type	Gain (dBi)	Connector	Remark
1	$\lambda/4$ Monopole	-1.5	---	---

### 1.1.4 EUT Operational Condition

Supply Voltage	<input checked="" type="checkbox"/> AC mains	<input checked="" type="checkbox"/> DC	
Type of DC Source	<input type="checkbox"/> Internal DC supply	<input checked="" type="checkbox"/> External DC adapter	<input checked="" type="checkbox"/> Battery

### 1.1.5 Accessories

Accessories		
No.	Equipment	Description
1	Battery	Brand Name: Fujitsu limited Model Name: CA54310-0052 Power Rating: O/P: 3.75Vdc, 3200mA, 12Wh



### 1.1.6 Channel List

Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
37	2402.00	18	2442.00
0	2404.00	19	2444.00
1	2406.00	20	2446.00
2	2408.00	21	2448.00
3	2410.00	22	2450.00
4	2412.00	23	2452.00
5	2414.00	24	2454.00
6	2416.00	25	2456.00
7	2418.00	26	2458.00
8	2420.00	27	2460.00
9	2422.00	28	2462.00
10	2424.00	29	2464.00
38	2426.00	30	2466.00
11	2428.00	31	2468.00
12	2430.00	32	2470.00
13	2432.00	33	2472.00
14	2434.00	34	2474.00
15	2436.00	35	2476.00
16	2438.00	36	2478.00
17	2440.00	39	2480.00

### 1.1.7 Test Tool and Power Setting

Test tool	QRCT , Ver 3.0.6.0		
Modulation Mode	Test Frequency (MHz)		
	2402	2440	2480
BT LE	Default	Default	Default

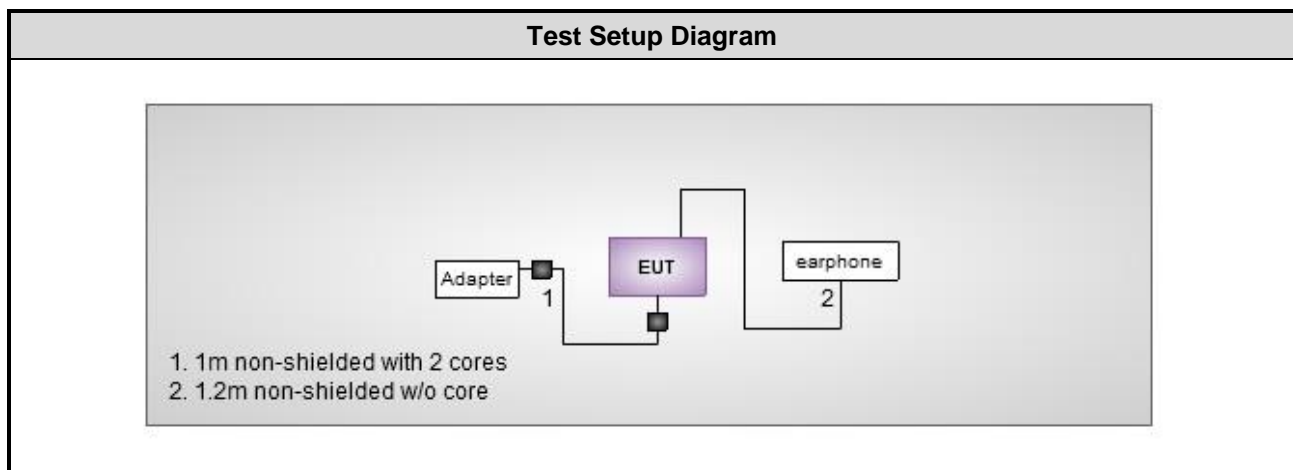


## 1.2 Local Support Equipment List

Support Equipment List						
No.	Equipment	Brand	Model	S/N	FCC ID	Signal cable / Length (m)
1	Adapter	NTT docomo	AC Adaptor 04	---	---	1m non-shielded with 2 cores
2	Earphone	APPLE	MD827FE/A	---	---	1.2m non-shielded w/o core

Note: Item 1 was provided by client.

## 1.3 Test Setup Chart





## 1.4 The Equipment List

Test Item	Conducted Emission				
Test Site	Conduction room 1 / (CO01-WS)				
Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Until
EMC Receiver	R&S	ESCS 30	100169	Oct. 02, 2012	Oct. 01, 2013
LISN	SCHWARZBECK MESS-ELEKTRONIK	Schwarzbeck 8127	8127-667	Dec. 04, 2012	Dec. 03, 2013
LISN (Support Unit)	SCHWARZBECK MESS-ELEKTRONIK	Schwarzbeck 8127	8127-666	Dec. 04, 2012	Dec. 03, 2013
ISN	TESEQ	ISN T800	34406	Apr. 08, 2013	Apr. 07, 2014
ISN	TESEQ	ISN T200A	30494	Apr. 09, 2013	Apr. 08, 2014
ISN	TESEQ	ISN T8-Cat6	27262	Sep. 17, 2012	Sep. 16, 2013
ISN	TESEQ	ISN ST08	22589	Jan. 24, 2013	Jan. 23, 2014
RF Current Probe	FCC	F-33-4	121630	Dec. 04, 2012	Dec. 03, 2013
RF Cable-CON	Woken	CFD200-NL	CFD200-NL-001	Dec. 25, 2012	Dec. 24, 2013
ESH3-Z6 V-Network(+)	R&S	ESH3-Z6	100920	Nov. 21, 2012	Nov. 20, 2013
ESH3-Z6 V-Network(-)	R&S	ESH3-Z6	100951	Jan. 30, 2013	Jan. 29, 2014
Two-Line V-Network	R&S	ENV216	101579	Jan. 07, 2013	Jan. 06, 2014
50 ohm terminal	NA	50	01	Apr. 22, 2013	Apr. 21, 2014
50 ohm terminal	NA	50	02	Apr. 22, 2013	Apr. 21, 2014
50 ohm terminal	NA	50	03	Apr. 22, 2013	Apr. 21, 2014
50 ohm terminal (Support Unit)	NA	50	04	Apr. 22, 2013	Apr. 21, 2014
Note: Calibration Interval of instruments listed above is one year.					

Test Item	RF Conducted				
Test Site	(TH01-WS)				
Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Until
Spectrum Analyzer	R&S	FSV 40	101063	Feb. 18, 2013	Feb. 17, 2014
TEMP&HUMIDITY CHAMBER	GIANT FORCE	GCT-225-40-SP-SD	MAF1212-002	Nov. 29, 2012	Nov. 28, 2013
Power Meter	Anritsu	ML2495A	1241002	Oct. 15, 2012	Oct. 14, 2013
Power Sensor	Anritsu	MA2411B	1027366	Oct. 24, 2012	Oct. 23, 2013
Signal Generator	R&S	SMB100A	175727	Jan. 14, 2013	Jan. 13, 2014
Note: Calibration Interval of instruments listed above is one year.					





Test Item	Radiated Emission above 1GHz				
Test Site	966 chamber1 / (03CH01-WS)				
Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Until
3m semi-anechoic chamber	CHAMPRO	SAC-03	03CH01-WS	Jan. 04, 2013	Jan. 03, 2014
Spectrum Analyzer	R&S	FSV40	101498	Jan. 24, 2013	Jan. 23, 2014
Receiver	R&S	ESR3	101658	Jan. 28, 2013	Jan. 27, 2014
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-522	Jan. 11, 2013	Jan. 10, 2014
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1096	Feb. 18, 2013	Feb. 17, 2014
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170517	Jan. 14, 2013	Jan. 13, 2014
Amplifier	Burgeon	BPA-530	100219	Nov. 28, 2012	Nov. 27, 2013
Amplifier	Agilent	83017A	MY39501308	Dec. 18, 2012	Dec. 17, 2013
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16014/4	Dec. 25, 2012	Dec. 24, 2013
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16019/4	Dec. 25, 2012	Dec. 24, 2013
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16139/4	Dec. 25, 2012	Dec. 24, 2013
RF Cable-R03m	Woken	CFD400NL-LW	CFD400NL-001	Dec. 25, 2012	Dec. 24, 2013
RF Cable-R10m	Woken	CFD400NL-LW	CFD400NL-002	Dec. 25, 2012	Dec. 24, 2013
control	EM Electronics	EM1000	60612	N/A	N/A
Note: Calibration Interval of instruments listed above is one year.					

Loop Antenna	R&S	HFH2-Z2	100330	Nov. 15, 2012	Nov. 14, 2014
Amplifier	MITEQ	AMF-6F-260400	9121372	Apr. 19, 2013	Apr. 18, 2015
Note: Calibration Interval of instruments listed above is two year.					

## 1.5 Test Standards

According to the specification of EUT, the EUT must comply with following standards and KDB documents.

47 CFR FCC Part 15.247

ANSI C63.10-2009

FCC KDB 558074 D01 DTS Meas Guidance v03r01

Note: The EUT has been tested and complied with FCC part 15B requirement. FCC Part 15B test results are issued to another report.



## 1.6 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor ( $k=2$ ))

Measurement Uncertainty	
Parameters	Uncertainty
Bandwidth	$\pm 35.286$ Hz
Conducted power	$\pm 0.536$ dB
Frequency error	$\pm 35.286$ Hz
Temperature	$\pm 0.3$ °C
Conducted emission	$\pm 2.946$ dB
AC conducted emission	$\pm 2.43$ dB
Radiated emission	$\pm 2.49$ dB



## 2 Test Configuration

### 2.1 Testing Condition

Test Item	Test Site	Ambient Condition	Tested By
AC Conduction	CO01-WS	22°C / 66%	Skys Huang
Radiated Emissions	03CH01-WS	23°C / 66%	Aska Huang Mark Liao
RF Conducted	TH01-WS	24°C / 61%	Felix Sung

➤ FCC site registration No.: 657002

➤ IC site registration No.: 10807A-1

### 2.2 The Worst Test Modes and Channel Details

Test item	Mode	Test channel
Conducted Emissions	BT LE	2440
Radiated Emissions < 1GHz	BT LE	2440
Radiated Emissions > 1GHz	BT LE	2402 / 2440 / 2480
Fundamental Emission Output Power	BT LE	2402 / 2440 / 2480
6dB Bandwidth	BT LE	2402 / 2440 / 2480
Power Spectral Density	BT LE	2402 / 2440 / 2480

**NOTE:**

1. The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement – X, Y, and Z-plane. The **Y-plane** results were found as the worst case and were shown in this report.



### 3 Transmitter Test Results

#### 3.1 Conducted Emissions

##### 3.1.1 Limit of Conducted Emissions

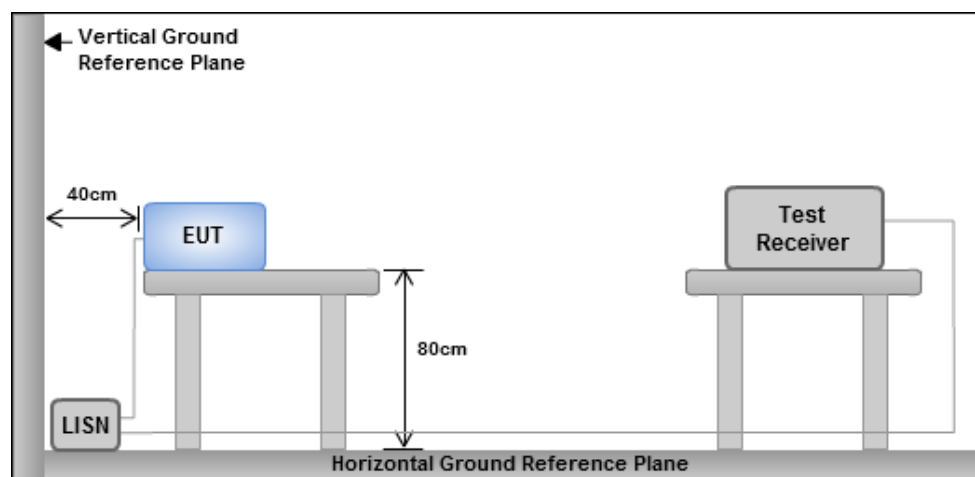
Conducted Emissions Limit		
Frequency Emission (MHz)	Quasi-Peak	Average
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50

Note 1: \* Decreases with the logarithm of the frequency.

##### 3.1.2 Test Procedures

1. The device is placed on a test table, raised 80 cm above the reference ground plane. The vertical conducting plane is located 40 cm to the rear of the device.
2. The device is connected to line impedance stabilization network (LISN) and other accessories are connected to other LISN. Measured levels of AC power line conducted emission are across the 50  $\Omega$  LISN port.
3. AC conducted emission measurements is made over frequency range from 150 kHz to 30 MHz.
4. This measurement was performed with AC 120V/60Hz

##### 3.1.3 Test Setup



Note: 1. Support units were connected to second LISN.

2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

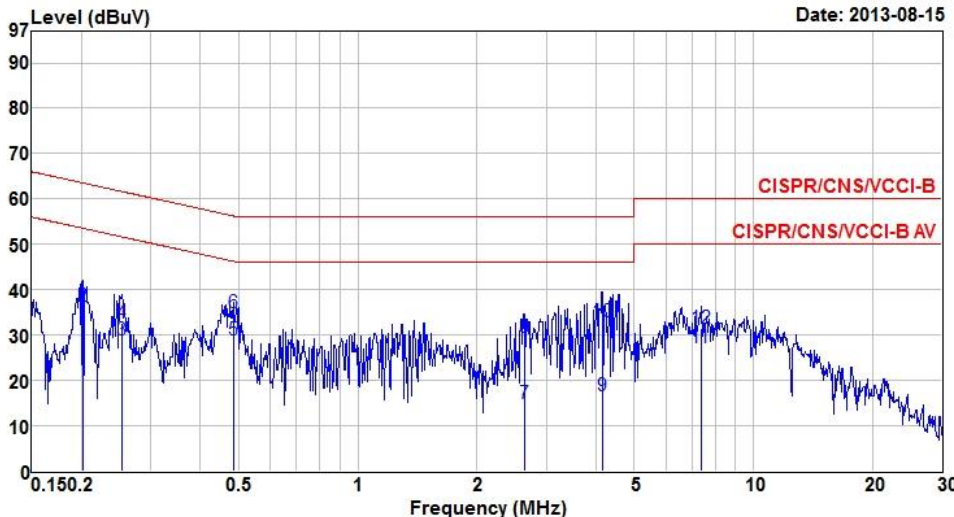


### 3.1.4 Test Result of Conducted Emissions

Modulation	LE	Test Freq. (MHz)	2440
Power Phase	Line		

Level (dBuV)

Date: 2013-08-15



Frequency (MHz)

	Freq	Level	Limit	Over	Read	LISN	cable	
	MHz	dBuV	Line	Limit	Level	factor	loss	Remark
			dBuV	dB	dBuV	dB	dB	
1	0.202	32.69	53.54	-20.85	32.46	0.05	0.18	Average
2	0.202	36.33	63.54	-27.21	36.10	0.05	0.18	QP
3	0.253	28.78	51.64	-22.86	28.59	0.05	0.14	Average
4	0.253	32.52	61.64	-29.12	32.33	0.05	0.14	QP
5	0.484	28.82	46.27	-17.45	28.69	0.08	0.05	Average
6	0.484	35.03	56.27	-21.24	34.90	0.08	0.05	QP
7	2.636	14.79	46.00	-31.21	14.40	0.20	0.19	Average
8	2.636	29.44	56.00	-26.56	29.05	0.20	0.19	QP
9	4.158	16.62	46.00	-29.38	16.21	0.17	0.24	Average
10	4.158	32.92	56.00	-23.08	32.51	0.17	0.24	QP
11	7.368	27.12	50.00	-22.88	26.63	0.34	0.15	Average
12	7.368	31.37	60.00	-28.63	30.88	0.34	0.15	QP

Note 1: Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB).

2: Over Limit (dBuV) = Limit Line (dBuV) – Level (dBuV).



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Modulation	LE	Test Freq. (MHz)	2440
Power Phase	Neutral		

Level (dBuV)

Date: 2013-08-15

Frequency (MHz)

	Freq	Level	Limit	Over	Read	LISN	cable	Remark
	MHz	dBuV	Line	Limit	Level	factor	loss	
			dBuV	dB	dBuV	dB	dB	
1	0.204	31.03	53.45	-22.42	30.81	0.04	0.18	Average
2	0.204	35.76	63.45	-27.69	35.54	0.04	0.18	QP
3	0.247	24.71	51.86	-27.15	24.53	0.04	0.14	Average
4	0.247	32.11	61.86	-29.75	31.93	0.04	0.14	QP
5	0.476	26.63	46.41	-19.78	26.50	0.08	0.05	Average
6	0.476	34.41	56.41	-22.00	34.28	0.08	0.05	QP
7	1.123	17.82	46.00	-28.18	17.61	0.15	0.06	Average
8	1.123	26.68	56.00	-29.32	26.47	0.15	0.06	QP
9	1.552	16.30	46.00	-29.70	16.01	0.17	0.12	Average
10	1.552	26.35	56.00	-29.65	26.06	0.17	0.12	QP
11	3.740	22.95	46.00	-23.05	22.57	0.15	0.23	Average
12	3.740	32.24	56.00	-23.76	31.86	0.15	0.23	QP

Note 1: Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB).  
2: Over Limit (dBuV) = Limit Line (dBuV) – Level (dBuV).



## 3.2 6dB and Occupied Bandwidth

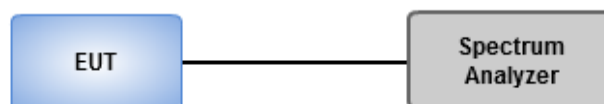
### 3.2.1 Limit of 6dB Bandwidth

The minimum 6dB bandwidth shall be at least 500 kHz.

### 3.2.2 Test Procedures

1. Set resolution bandwidth (RBW) = 100 kHz, Video bandwidth = 300 kHz.
2. Detector = Peak, Trace mode = max hold.
3. Sweep = auto couple, Allow the trace to stabilize.
4. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6dB relative to the maximum level measured in the fundamental emission.

### 3.2.3 Test Setup



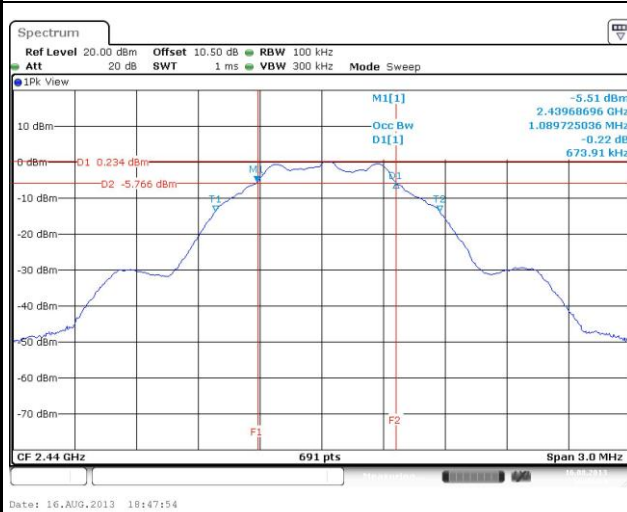


### 3.2.4 Test Result of 6dB and Occupied Bandwidth

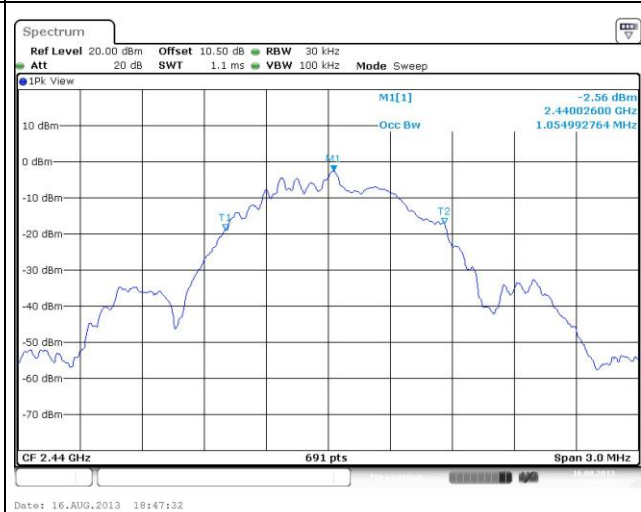
Modulation Mode	Freq. (MHz)	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Limit of 6dB Bandwidth (kHz)
BT LE	2402	0.674	1.05	500
BT LE	2440	0.674	1.05	500
BT LE	2480	0.674	1.05	500

#### Worst Plots

##### 6dB Bandwidth



##### 99% Occupied Bandwidth







### 3.3 RF Output Power

#### 3.3.1 Limit of RF Output Power

Conducted power shall not exceed 1Watt.

☒ Antenna gain  $\leq 6\text{dBi}$ , no any corresponding reduction is in output power limit.

☐ Antenna gain  $> 6\text{dBi}$

☐ Non Fixed, point to point operations.

The conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dB

☐ Fixed, point to point operations

Systems operating in the 2400–2483.5 MHz band that are used exclusively for fixed, point-to-point Operations, maximum peak output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

Systems operating in the 5725–5850 MHz band that are used exclusively for fixed, point-to-point operations ,no any corresponding reduction is in transmitter peak output power

#### 3.3.2 Test Procedures

☒ Maximum Peak Conducted Output Power

☐ **Spectrum analyzer**

1. Set RBW = 1MHz, VBW = 3MHz, Detector = Peak.
2. Sweep time = auto, Trace mode = max hold, Allow trace to fully stabilize.
3. Use the spectrum analyzer channel power measurement function with the band limits set equal to the DTS bandwidth edges.

☒ **Power meter**

1. A broadband Peak RF power meter is used for output power measurement. The video bandwidth of power meter is greater than DTS bandwidth of EUT. If duty cycle of test signal is not 100 %, trigger and gating function of power meter will be enabled to capture transmission burst for measuring output power.

☒ Maximum Conducted Output Power ( For reference only )

☐ **Spectrum analyzer**

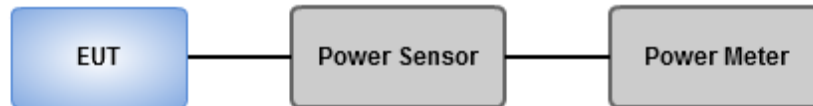
1. Set RBW = 1MHz, VBW = 3MHz, Detector = RMS.
2. Set the sweep time to:  $\geq 10 \times (\text{number of measurement points in sweep}) \times (\text{maximum data rate per stream})$ .
3. Perform the measurement over a single sweep.
4. Use the spectrum analyzer's band power measurement function with band limits set equal to the EBW(26dBc) band edges.

☒ **Power meter**

1. A broadband Average RF power meter is used for output power measurement. The video bandwidth of power meter is greater than DTS bandwidth of EUT. If duty cycle of test signal is not 100 %, trigger and gating function of power meter will be enabled to capture transmission burst for measuring output power.



### 3.3.3 Test Setup



### 3.3.4 Test Result of Maximum Output Power

Modulation Mode	Freq. (MHz)	Peak Power (dBm)	Total Power (mW)	Total Power (dBm)	Limit (dBm)
BT LE	2402	0.80	1.20	0.80	30
BT LE	2440	0.29	1.07	0.29	30
BT LE	2480	0.26	1.06	0.26	30

Modulation Mode	Freq. (MHz)	Conducted Average Power (dBm)	Total Power (mW)	Total Power (dBm)	Limit (dBm)
BT LE	2402	0.47	1.11	0.47	30
BT LE	2440	-0.03	0.99	-0.03	30
BT LE	2480	-0.05	0.99	-0.05	30

Note: Average power is for reference only



### 3.4 Power Spectral Density

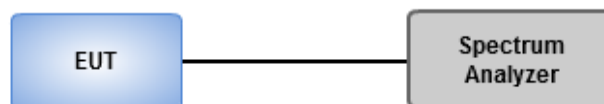
#### 3.4.1 Limit of Power Spectral Density

Power spectral density shall not be greater than 8 dBm in any 3 kHz band.

#### 3.4.2 Test Procedures

- ☒ Maximum peak conducted output power was used to demonstrate compliance to the fundamental output power limit.
  1. Set the RBW = 10kHz, VBW = 30kHz.
  2. Detector = Peak, Sweep time = auto couple.
  3. Trace mode = max hold, allow trace to fully stabilize.
  4. Use the peak marker function to determine the maximum amplitude level.
- ☐ Maximum (average) conducted output power was used to demonstrate compliance to the fundamental output power limit.
  1. Set the RBW = 100kHz, VBW = 300 kHz.
  2. Detector = RMS, Sweep time = auto couple.
  3. Set the sweep time to:  $\geq 10 \times (\text{number of measurement points in sweep}) \times (\text{maximum data rate per stream})$ .
  4. Perform the measurement over a single sweep.
  5. Use the peak marker function to determine the maximum amplitude level.\

#### 3.4.3 Test Setup

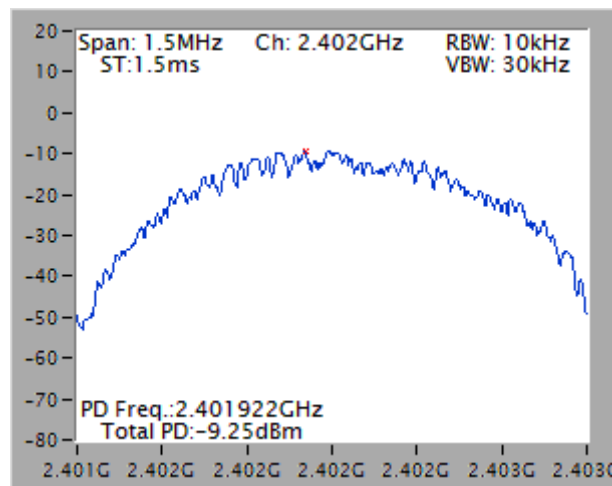




### 3.4.4 Test Result of Power Spectral Density

Modulation Mode	Freq. (MHz)	Total Power Spectral Density (dBm/10kHz)	Limit (dBm/3kHz)
BT LE	2402	-9.25	8
BT LE	2440	-9.76	8
BT LE	2480	-9.80	8

Worst Plots





## 3.5 Unwanted Emissions into Restricted Frequency Bands

### 3.5.1 Limit of Unwanted Emissions into Restricted Frequency Bands

Restricted Band Emissions Limit			
Frequency Range (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m)	Measure Distance (m)
0.009~0.490	2400/F(kHz)	48.5 - 13.8	300
0.490~1.705	24000/F(kHz)	33.8 - 23	30
1.705~30.0	30	29	30
30~88	100	40	3
88~216	150	43.5	3
216~960	200	46	3
Above 960	500	54	3

**Note 1:**  
Qusai-Peak value is measured for frequency below 1GHz except for 9–90 kHz, 110–490 kHz frequency band. Peak and average value are measured for frequency above 1GHz. The limit on average radio frequency emission is as above table. The limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit

**Note 2:**  
Measurements may be performed at a distance other than what is specified provided. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor as below, Frequency at or above 30 MHz: 20 dB/decade Frequency below 30 MHz: 40 dB/decade.

### 3.5.2 Test Procedures

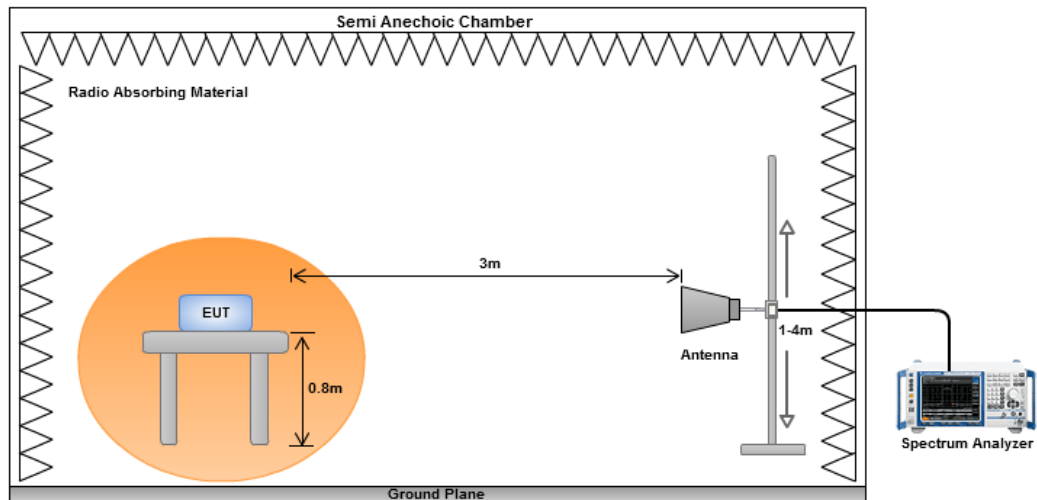
1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission frequency. The EUT is placed at a height of 0.8 m test table above the ground plane.
2. Measurement is made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna is varied in height (1m ~ 4m) above the reference ground plane to obtain the maximum signal strength. Distance between EUT and antenna is 3 m.
3. 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.

Note:

1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
3. RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above 1GHz.



### 3.5.3 Test Setup





### 3.5.4 Transmitter Radiated Unwanted Emissions (Below 1GHz)

Modulation	LE		Test Freq. (MHz)		2440																																																																							
Polarization	Horizontal																																																																											
<div><p>The graph displays the radiated unwanted emissions of a transmitter. The y-axis represents the level in dBUV/m, ranging from 0 to 97. The x-axis represents the frequency in MHz, ranging from 30 to 1000. A red line indicates the FCC CLASS-B limit, which is 40 dBUV/m from 30 to 100 MHz, 45 dBUV/m from 100 to 1000 MHz, and 50 dBUV/m from 1000 to 10000 MHz. Six measured peaks are labeled with blue numbers 1 through 6. The data for these peaks is provided in the table below.</p><table><tr><th></th><th>Freq. MHz</th><th>Emission level dBUV/m</th><th>Limit dBUV/m</th><th>Margin dB</th><th>SA reading dBUV</th><th>Factor dB</th><th>Remark</th><th>ANT High cm</th><th>Turn Table deg</th></tr><tr><td>1</td><td>164.83</td><td>23.47</td><td>43.50</td><td>-20.03</td><td>40.45</td><td>-16.98</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>2</td><td>511.12</td><td>21.56</td><td>46.00</td><td>-24.44</td><td>32.94</td><td>-11.38</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>3</td><td>624.61</td><td>22.01</td><td>46.00</td><td>-23.99</td><td>31.40</td><td>-9.39</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>4</td><td>752.65</td><td>25.77</td><td>46.00</td><td>-20.23</td><td>32.95</td><td>-7.18</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>5</td><td>780.78</td><td>31.04</td><td>46.00</td><td>-14.96</td><td>37.98</td><td>-6.94</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>6</td><td>912.70</td><td>25.65</td><td>46.00</td><td>-20.35</td><td>30.99</td><td>-5.34</td><td>Peak</td><td>---</td><td>---</td></tr></table></div>								Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg	1	164.83	23.47	43.50	-20.03	40.45	-16.98	Peak	---	---	2	511.12	21.56	46.00	-24.44	32.94	-11.38	Peak	---	---	3	624.61	22.01	46.00	-23.99	31.40	-9.39	Peak	---	---	4	752.65	25.77	46.00	-20.23	32.95	-7.18	Peak	---	---	5	780.78	31.04	46.00	-14.96	37.98	-6.94	Peak	---	---	6	912.70	25.65	46.00	-20.35	30.99	-5.34	Peak	---	---
	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg																																																																			
1	164.83	23.47	43.50	-20.03	40.45	-16.98	Peak	---	---																																																																			
2	511.12	21.56	46.00	-24.44	32.94	-11.38	Peak	---	---																																																																			
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Modulation	LE		Test Freq. (MHz)		2440																																																																																														
Polarization	Vertical																																																																																																		
<div><p>Level (dBuV/m)</p><p>Frequency (MHz)</p></div> <table><tr><th></th><th>Freq.</th><th>Emission</th><th>Limit</th><th>Margin</th><th>SA</th><th>Factor</th><th>Remark</th><th>ANT</th><th>Turn</th></tr><tr><th></th><th>MHz</th><th>level</th><th>dBuV/m</th><th>dB</th><th>reading</th><th>dB</th><th></th><th>High</th><th>Table</th></tr><tr><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th>cm</th><th>deg</th></tr><tr><td>1</td><td>30.00</td><td>29.00</td><td>40.00</td><td>-11.00</td><td>46.73</td><td>-17.73</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>2</td><td>143.49</td><td>31.47</td><td>43.50</td><td>-12.03</td><td>48.58</td><td>-17.11</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>3</td><td>182.29</td><td>30.61</td><td>43.50</td><td>-12.89</td><td>49.12</td><td>-18.51</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>4</td><td>341.37</td><td>27.65</td><td>46.00</td><td>-18.35</td><td>42.79</td><td>-15.14</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>5</td><td>511.12</td><td>22.41</td><td>46.00</td><td>-23.59</td><td>33.79</td><td>-11.38</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>6</td><td>780.78</td><td>28.48</td><td>46.00</td><td>-17.52</td><td>35.42</td><td>-6.94</td><td>Peak</td><td>---</td><td>---</td></tr></table>											Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn		MHz	level	dBuV/m	dB	reading	dB		High	Table									cm	deg	1	30.00	29.00	40.00	-11.00	46.73	-17.73	Peak	---	---	2	143.49	31.47	43.50	-12.03	48.58	-17.11	Peak	---	---	3	182.29	30.61	43.50	-12.89	49.12	-18.51	Peak	---	---	4	341.37	27.65	46.00	-18.35	42.79	-15.14	Peak	---	---	5	511.12	22.41	46.00	-23.59	33.79	-11.38	Peak	---	---	6	780.78	28.48	46.00	-17.52	35.42	-6.94	Peak	---	---
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3	182.29	30.61	43.50	-12.89	49.12	-18.51	Peak	---	---																																																																																										
4	341.37	27.65	46.00	-18.35	42.79	-15.14	Peak	---	---																																																																																										
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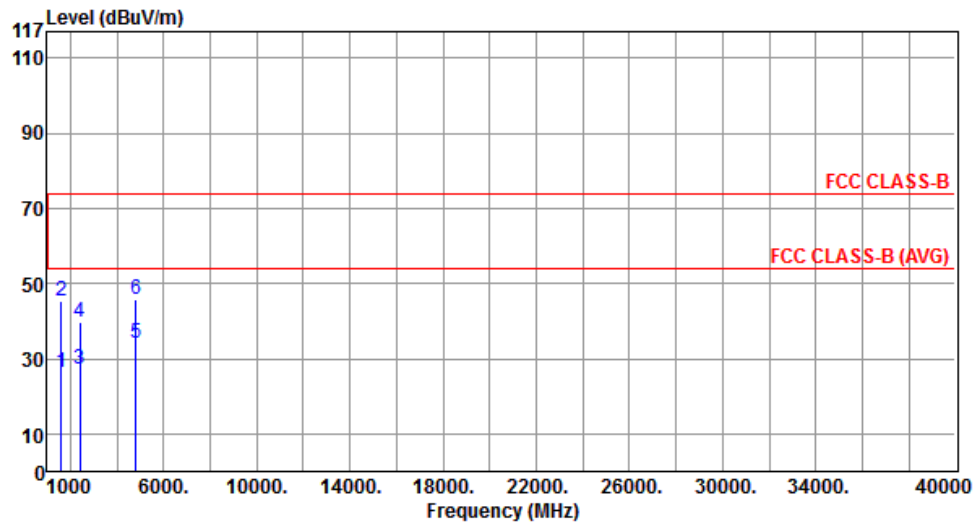


### 3.5.5 Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation	LE	Test Freq. (MHz)	2402																																																																																										
Polarization	Horizontal																																																																																												
<div><div><div>Level (dBuV/m)</div><div><div><div><div><div><div>117</div><div>110</div><div>90</div><div>70</div><div>50</div><div>30</div><div>10</div><div>0</div></div></div><div><div><div><div><div>2</div><div>4</div><div>3</div><div>6</div><div>5</div></div></div><div><div><div><div>1000</div><div>6000</div><div>10000</div><div>14000</div><div>18000</div><div>22000</div><div>26000</div><div>30000</div><div>34000</div><div>40000</div></div></div></div><div><div>Frequency (MHz)</div><div>FCC CLASS-B</div><div>FCC CLASS-B (AVG)</div></div></div></div><table><tr><th></th><th>Freq.</th><th>Emission</th><th>Limit</th><th>Margin</th><th>SA</th><th>Factor</th><th>Remark</th><th>ANT</th><th>Turn</th></tr><tr><th></th><th>MHz</th><th>level</th><th></th><th></th><th>reading</th><th></th><th></th><th>High</th><th>Table</th></tr><tr><th></th><th></th><th>dBuV/m</th><th>dBuV/m</th><th>dB</th><th>dBuV</th><th>dB</th><th></th><th>cm</th><th>deg</th></tr><tr><td>1</td><td>1594.00</td><td>24.94</td><td>54.00</td><td>-29.06</td><td>31.24</td><td>-6.30</td><td>Average</td><td>---</td><td>---</td></tr><tr><td>2</td><td>1594.00</td><td>41.90</td><td>74.00</td><td>-32.10</td><td>48.20</td><td>-6.30</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>3</td><td>2390.00</td><td>26.64</td><td>54.00</td><td>-27.36</td><td>29.86</td><td>-3.22</td><td>Average</td><td>---</td><td>---</td></tr><tr><td>4</td><td>2390.00</td><td>39.49</td><td>74.00</td><td>-34.51</td><td>42.71</td><td>-3.22</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>5</td><td>4804.00</td><td>32.49</td><td>54.00</td><td>-21.51</td><td>28.21</td><td>4.28</td><td>Average</td><td>---</td><td>---</td></tr><tr><td>6</td><td>4804.00</td><td>44.37</td><td>74.00</td><td>-29.63</td><td>40.09</td><td>4.28</td><td>Peak</td><td>---</td><td>---</td></tr></table><div><div>Note 1: "&gt;20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.</div><div>Note 2: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.</div><div>Note 3: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.</div></div></div></div></div></div></div>					Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn		MHz	level			reading			High	Table			dBuV/m	dBuV/m	dB	dBuV	dB		cm	deg	1	1594.00	24.94	54.00	-29.06	31.24	-6.30	Average	---	---	2	1594.00	41.90	74.00	-32.10	48.20	-6.30	Peak	---	---	3	2390.00	26.64	54.00	-27.36	29.86	-3.22	Average	---	---	4	2390.00	39.49	74.00	-34.51	42.71	-3.22	Peak	---	---	5	4804.00	32.49	54.00	-21.51	28.21	4.28	Average	---	---	6	4804.00	44.37	74.00	-29.63	40.09	4.28	Peak	---	---
	Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn																																																																																				
	MHz	level			reading			High	Table																																																																																				
		dBuV/m	dBuV/m	dB	dBuV	dB		cm	deg																																																																																				
1	1594.00	24.94	54.00	-29.06	31.24	-6.30	Average	---	---																																																																																				
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3	2390.00	26.64	54.00	-27.36	29.86	-3.22	Average	---	---																																																																																				
4	2390.00	39.49	74.00	-34.51	42.71	-3.22	Peak	---	---																																																																																				
5	4804.00	32.49	54.00	-21.51	28.21	4.28	Average	---	---																																																																																				
6	4804.00	44.37	74.00	-29.63	40.09	4.28	Peak	---	---																																																																																				



Modulation	LE	Test Freq. (MHz)	2402
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1594.00	26.26	54.00	-27.74	32.56	-6.30	Average	---	---
2	1594.00	45.27	74.00	-28.73	51.57	-6.30	Peak	---	---
3	2390.00	27.26	54.00	-26.74	30.48	-3.22	Average	---	---
4	2390.00	39.66	74.00	-34.34	42.88	-3.22	Peak	---	---
5	4804.00	34.06	54.00	-19.94	29.78	4.28	Average	---	---
6	4804.00	45.93	74.00	-28.07	41.65	4.28	Peak	---	---

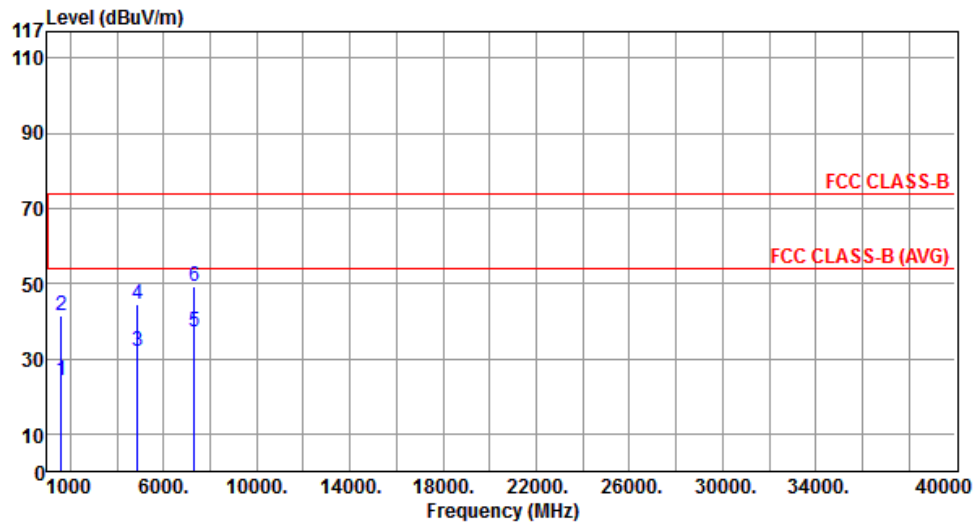
Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Note 3: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.



Modulation	LE	Test Freq. (MHz)	2440
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1594.00	24.10	54.00	-29.90	30.40	-6.30	Average	---	---
2	1594.00	41.65	74.00	-32.35	47.95	-6.30	Peak	---	---
3	4880.00	32.06	54.00	-21.94	27.66	4.40	Average	---	---
4	4880.00	44.53	74.00	-29.47	40.13	4.40	Peak	---	---
5	7320.00	37.04	54.00	-16.96	28.11	8.93	Average	---	---
6	7320.00	49.28	74.00	-24.72	40.35	8.93	Peak	---	---

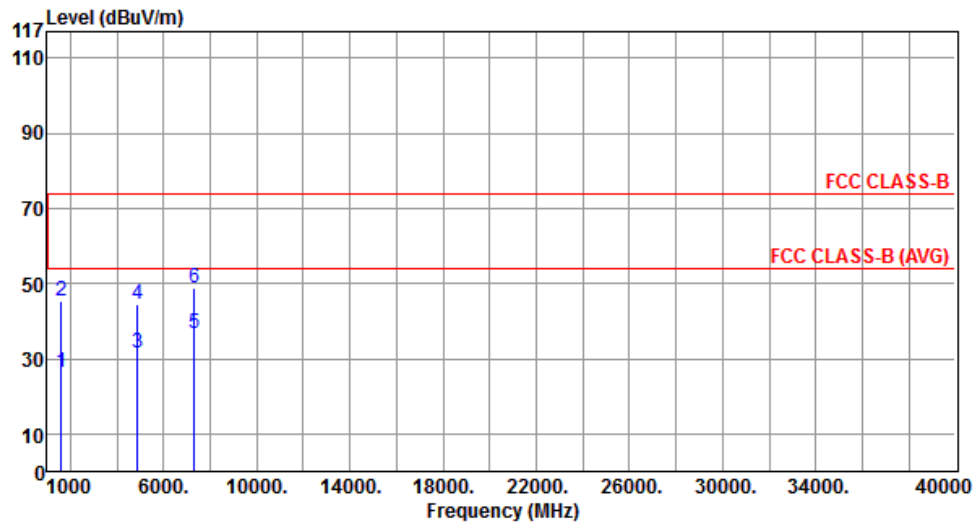
Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Note 3: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.



Modulation	LE	Test Freq. (MHz)	2440
Polarization	Vertical		



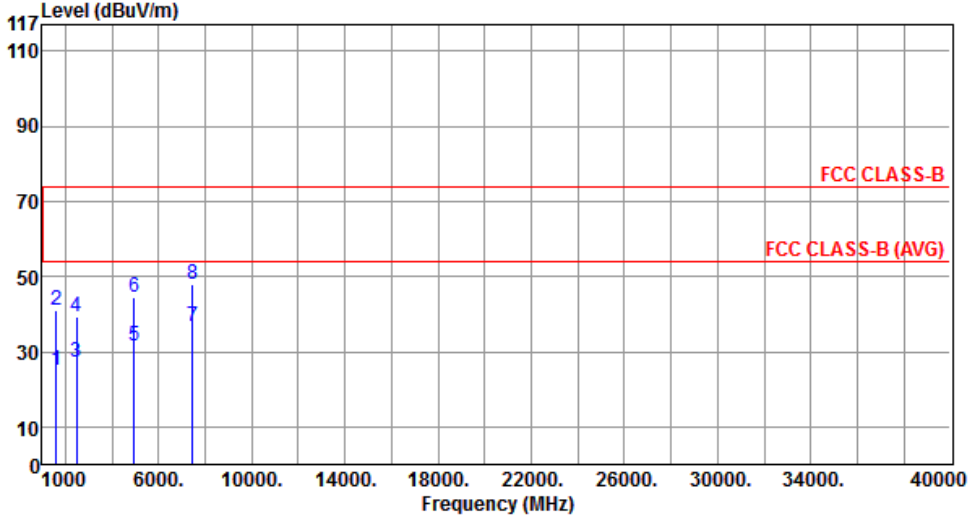
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1594.00	26.27	54.00	-27.73	32.57	-6.30	Average	---	---
2	1594.00	45.14	74.00	-28.86	51.44	-6.30	Peak	---	---
3	4880.00	31.66	54.00	-22.34	27.26	4.40	Average	---	---
4	4880.00	44.55	74.00	-29.45	40.15	4.40	Peak	---	---
5	7320.00	36.61	54.00	-17.39	27.68	8.93	Average	---	---
6	7320.00	48.94	74.00	-25.06	40.01	8.93	Peak	---	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

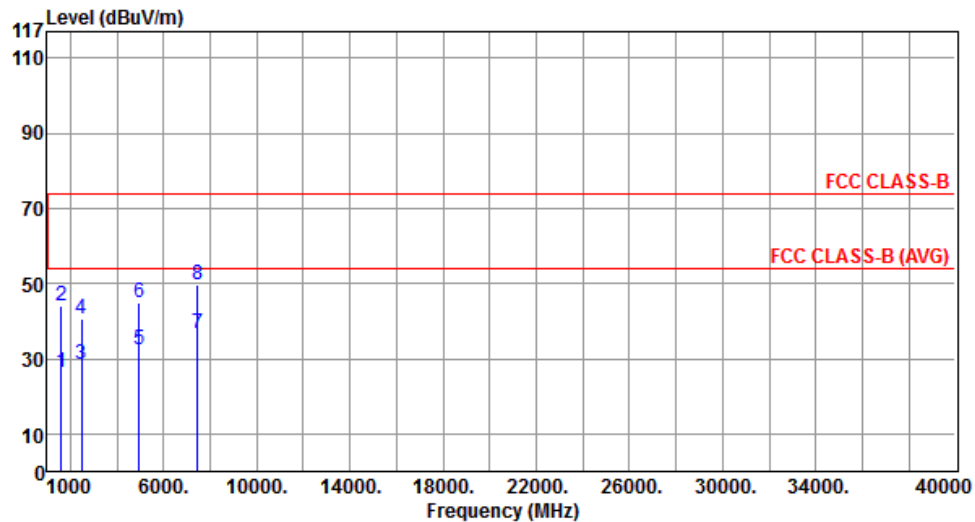
Note 3: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.



Modulation	LE	Test Freq. (MHz)	2480																																																																																																														
Polarization	Horizontal																																																																																																																
<div></div> <table><tr><th></th><th>Freq.</th><th>Emission</th><th>Limit</th><th>Margin</th><th>SA</th><th>Factor</th><th>Remark</th><th>ANT</th><th>Turn</th></tr><tr><th></th><th>MHz</th><th>level</th><th>dBuV/m</th><th>dB</th><th>reading</th><th>dB</th><th></th><th>High</th><th>Table</th></tr><tr><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th>cm</th><th>deg</th></tr><tr><td>1</td><td>1594.00</td><td>24.94</td><td>54.00</td><td>-29.06</td><td>31.24</td><td>-6.30</td><td>Average</td><td>---</td><td>---</td></tr><tr><td>2</td><td>1594.00</td><td>41.21</td><td>74.00</td><td>-32.79</td><td>47.51</td><td>-6.30</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>3</td><td>2483.50</td><td>27.14</td><td>54.00</td><td>-26.86</td><td>29.97</td><td>-2.83</td><td>Average</td><td>---</td><td>---</td></tr><tr><td>4</td><td>2483.50</td><td>39.15</td><td>74.00</td><td>-34.85</td><td>41.98</td><td>-2.83</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>5</td><td>4960.00</td><td>31.71</td><td>54.00</td><td>-22.29</td><td>27.17</td><td>4.54</td><td>Average</td><td>---</td><td>---</td></tr><tr><td>6</td><td>4960.00</td><td>44.34</td><td>74.00</td><td>-29.66</td><td>39.80</td><td>4.54</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>7</td><td>7440.00</td><td>36.54</td><td>54.00</td><td>-17.46</td><td>27.42</td><td>9.12</td><td>Average</td><td>---</td><td>---</td></tr><tr><td>8</td><td>7440.00</td><td>47.81</td><td>74.00</td><td>-26.19</td><td>38.69</td><td>9.12</td><td>Peak</td><td>---</td><td>---</td></tr></table>					Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn		MHz	level	dBuV/m	dB	reading	dB		High	Table									cm	deg	1	1594.00	24.94	54.00	-29.06	31.24	-6.30	Average	---	---	2	1594.00	41.21	74.00	-32.79	47.51	-6.30	Peak	---	---	3	2483.50	27.14	54.00	-26.86	29.97	-2.83	Average	---	---	4	2483.50	39.15	74.00	-34.85	41.98	-2.83	Peak	---	---	5	4960.00	31.71	54.00	-22.29	27.17	4.54	Average	---	---	6	4960.00	44.34	74.00	-29.66	39.80	4.54	Peak	---	---	7	7440.00	36.54	54.00	-17.46	27.42	9.12	Average	---	---	8	7440.00	47.81	74.00	-26.19	38.69	9.12	Peak	---	---
	Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn																																																																																																								
	MHz	level	dBuV/m	dB	reading	dB		High	Table																																																																																																								
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5	4960.00	31.71	54.00	-22.29	27.17	4.54	Average	---	---																																																																																																								
6	4960.00	44.34	74.00	-29.66	39.80	4.54	Peak	---	---																																																																																																								
7	7440.00	36.54	54.00	-17.46	27.42	9.12	Average	---	---																																																																																																								
8	7440.00	47.81	74.00	-26.19	38.69	9.12	Peak	---	---																																																																																																								
<p>Note 1: "&gt;20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.</p> <p>Note 2: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.</p> <p>Note 3: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.</p>																																																																																																																	



Modulation	LE	Test Freq. (MHz)	2480
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1594.00	26.24	54.00	-27.76	32.54	-6.30	Average	---	---
2	1594.00	44.16	74.00	-29.84	50.46	-6.30	Peak	---	---
3	2483.50	28.30	54.00	-25.70	31.13	-2.83	Average	---	---
4	2483.50	40.42	74.00	-33.58	43.25	-2.83	Peak	---	---
5	4960.00	32.26	54.00	-21.74	27.72	4.54	Average	---	---
6	4960.00	44.83	74.00	-29.17	40.29	4.54	Peak	---	---
7	7440.00	36.52	54.00	-17.48	27.40	9.12	Average	---	---
8	7440.00	49.49	74.00	-24.51	40.37	9.12	Peak	---	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.

Note 3: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.



## 3.6 Unwanted Emissions into Non-Restricted Frequency Bands

### 3.6.1 Limit of Unwanted Emissions into Non-Restricted Frequency Bands

- ☒ The peak output power measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz.
- ☐ The peak power in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum in-band peak PSD level in 100 kHz.

### 3.6.2 Test Procedures

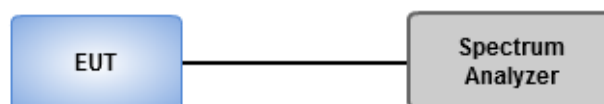
#### Reference Level Measurement

1. Set the RBW = 100 kHz, VBW = 300 kHz, Detector = peak.
2. Set Sweep time = auto couple, Trace mode = max hold.
3. Allow trace to fully stabilize.
4. Use the peak marker function to determine the maximum amplitude level.

#### Unwanted Emissions Level Measurement

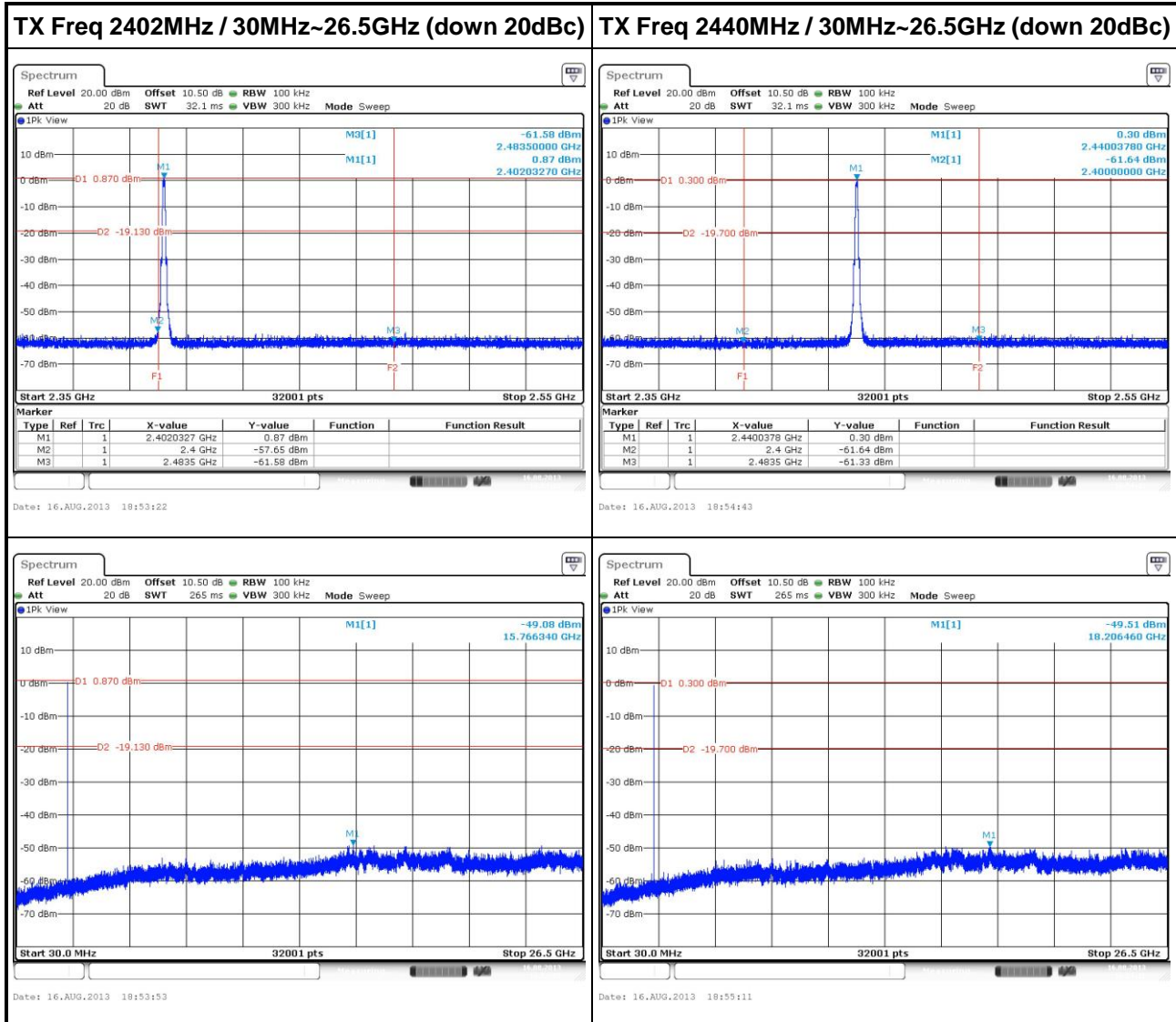
1. Set RBW = 100 kHz, VBW = 300 kHz, Detector = peak.
2. Trace Mode = max hold, Sweep = auto couple.
3. Allow the trace to stabilize.
4. Use peak marker function to determine maximum amplitude of all unwanted emissions within any 100 kHz bandwidth.

### 3.6.3 Test Setup





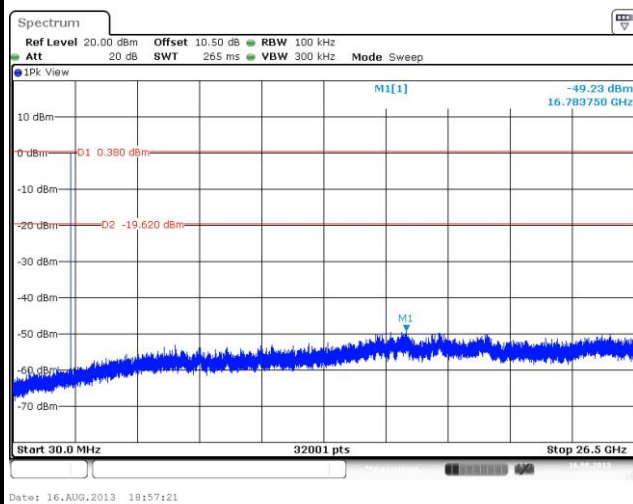
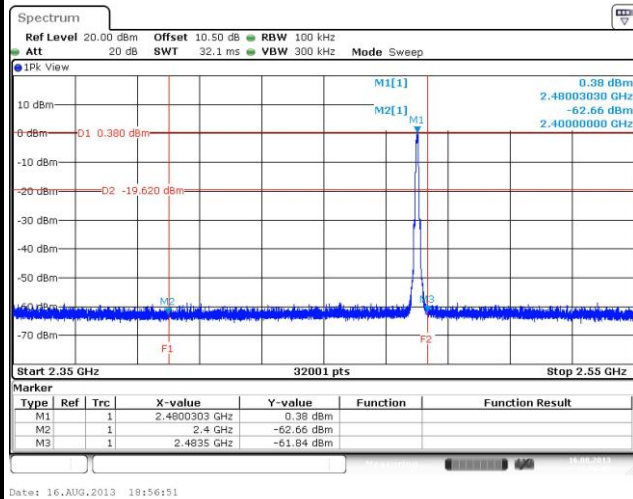
### 3.6.4 Unwanted Emissions into Non-Restricted Frequency Bands







TX Freq 2480MHz / 30MHz~26.5GHz (down 20dBc)



==END==