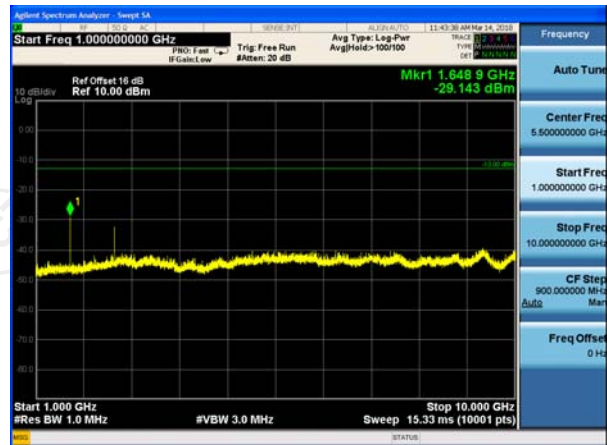
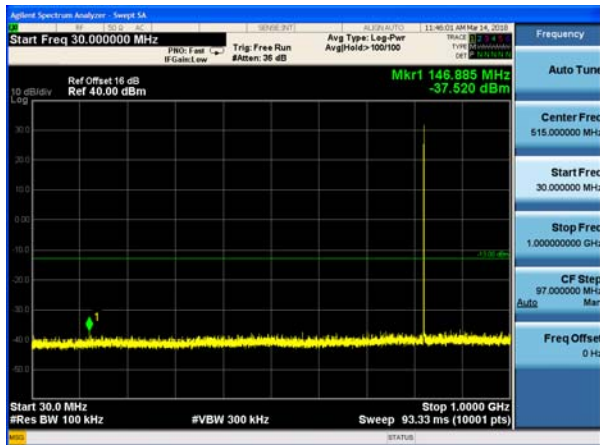
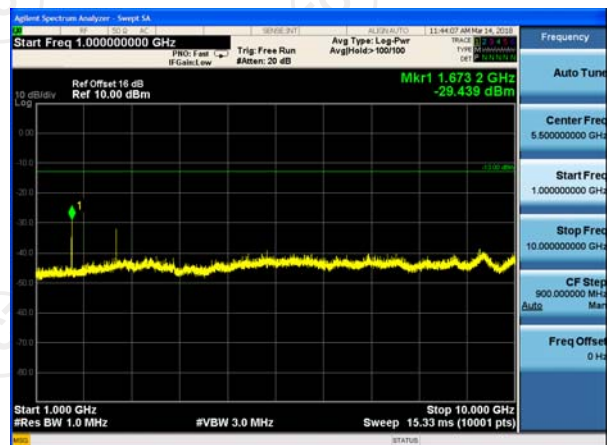
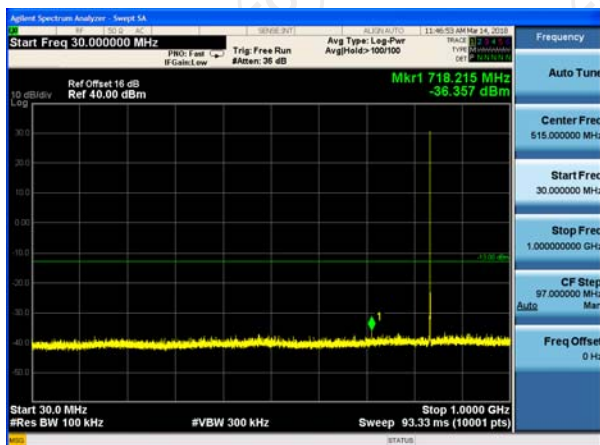


Band:	EGPRS 850	Test Mode:	EGPRS Class 8 Link (8PSK)
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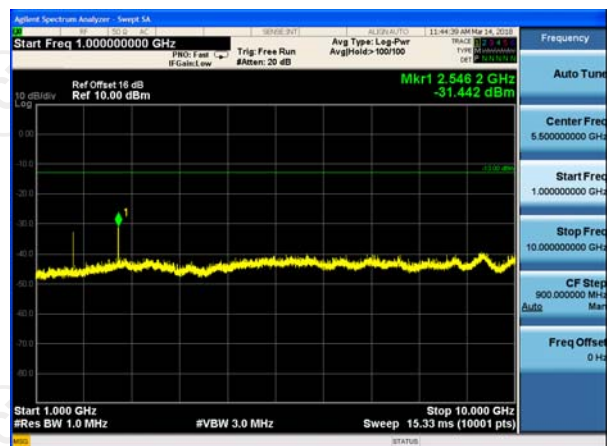
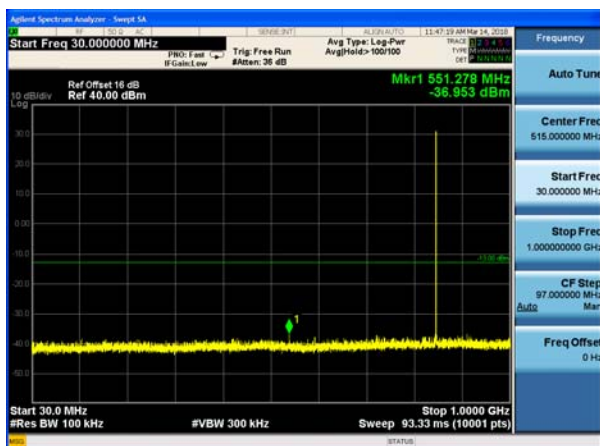
## Conducted Spurious Emission on Channel 128



## Conducted Spurious Emission on Channel 189

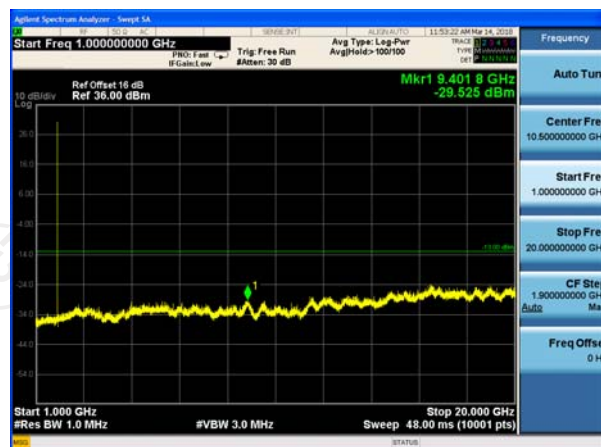
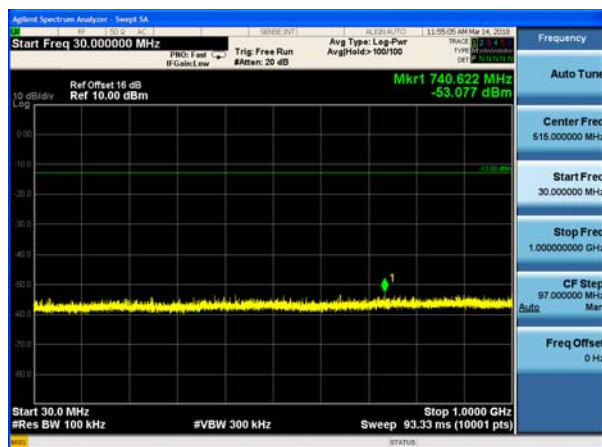


## Conducted Spurious Emission on Channel 251

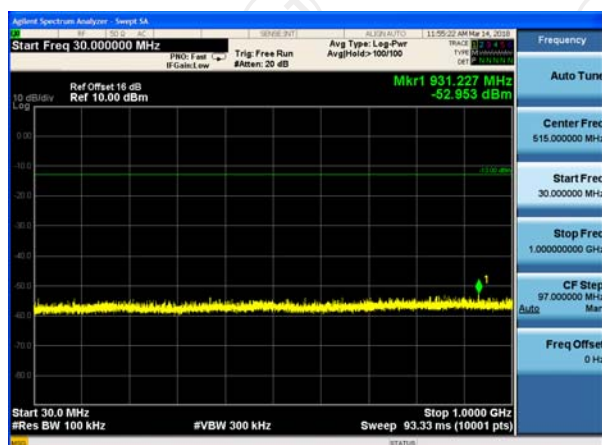


Band:	EGPRS 1900	Test Mode:	EGPRS Class 8 Link (8PSK)
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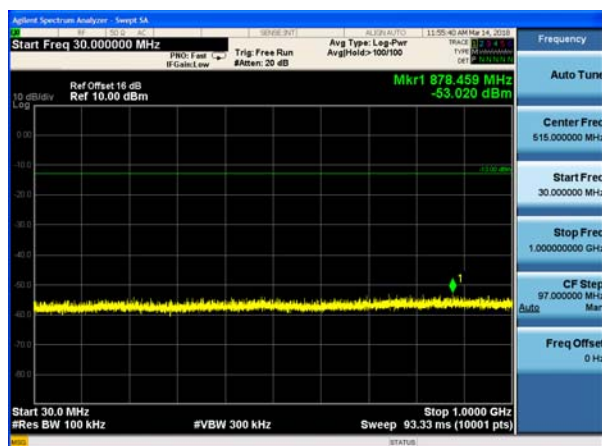
## Conducted Spurious Emission on Channel 512



## Conducted Spurious Emission on Channel 661



## Conducted Spurious Emission on Channel 810



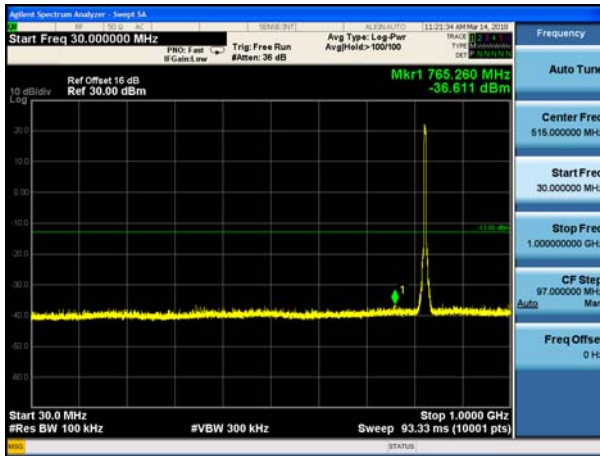
Band:

WCDMA Band V

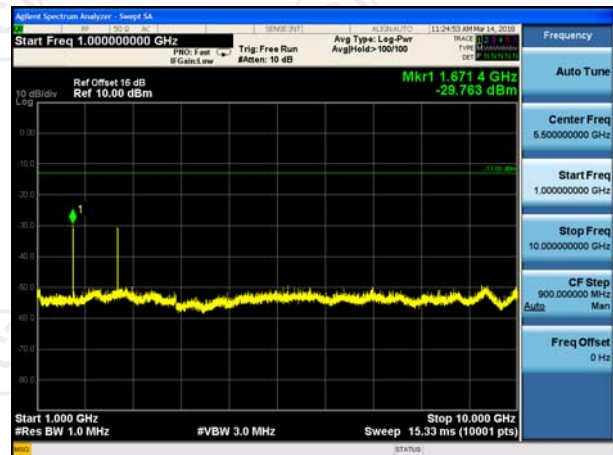
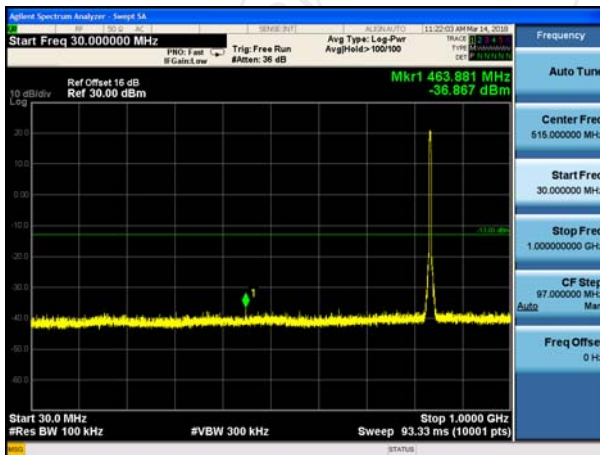
Test Mode:

RMC 12.2Kbps Link  
(QPSK)

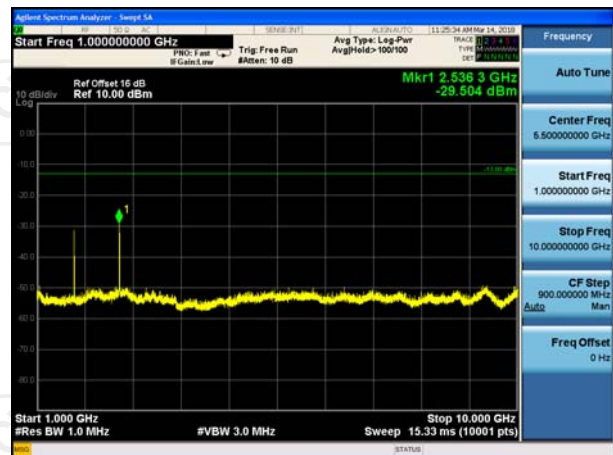
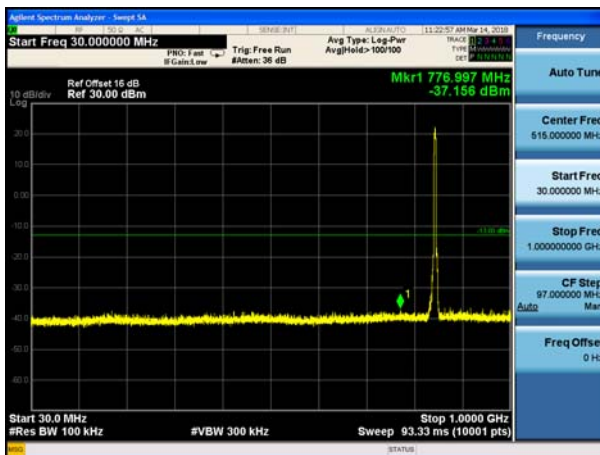
## Conducted Spurious Emission on Channel 4132



## Conducted Spurious Emission on Channel 4183



## Conducted Spurious Emission on Channel 4233





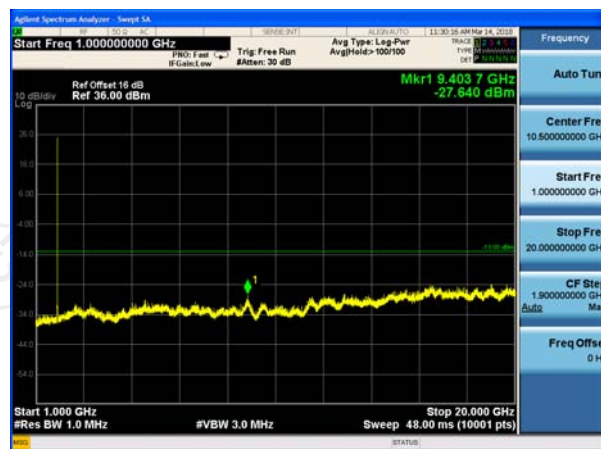
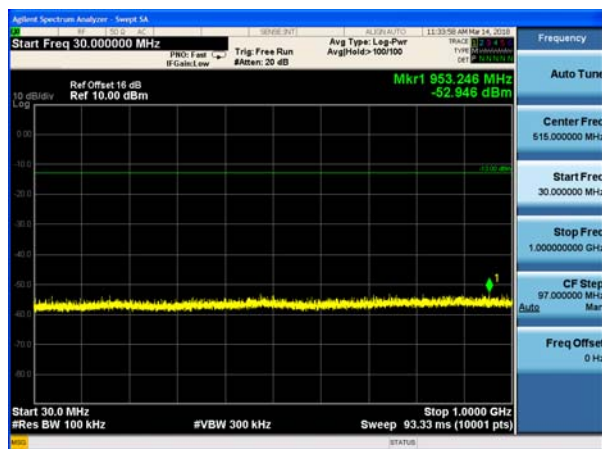
Band:

WCDMA Band II

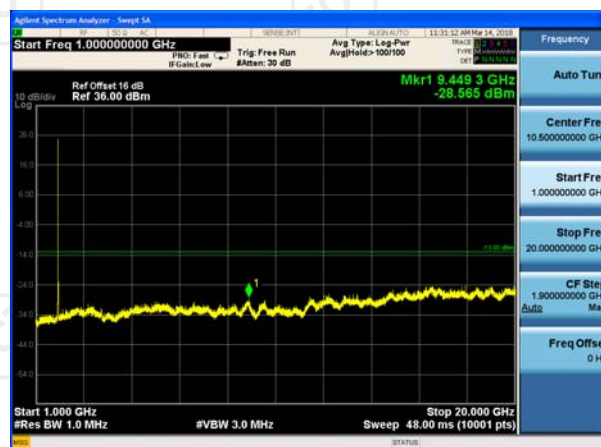
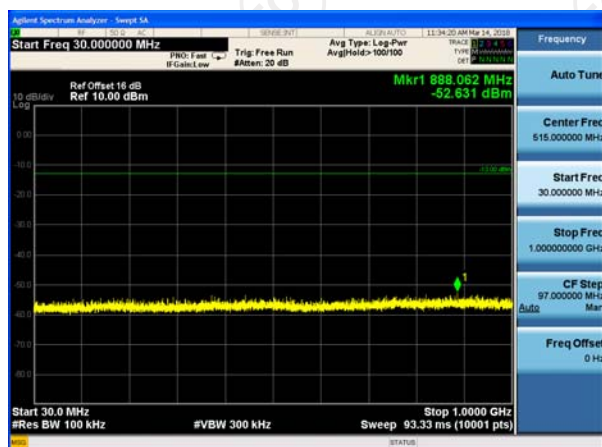
Test Mode:

RMC 12.2Kbps Link  
(QPSK)

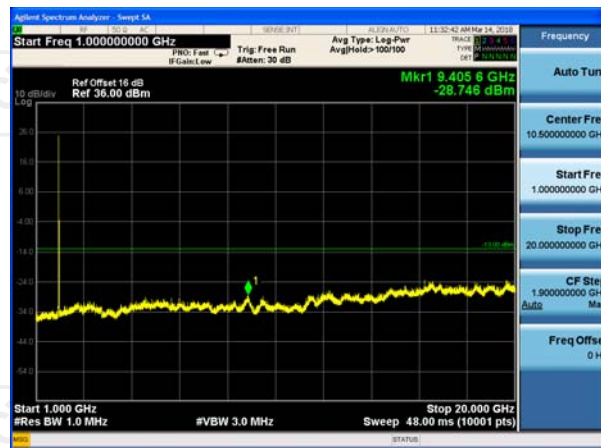
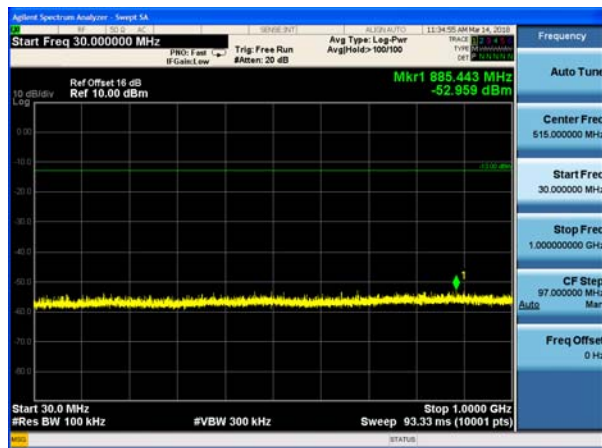
## Conducted Spurious Emission on Channel 9262



## Conducted Spurious Emission on Channel 9400

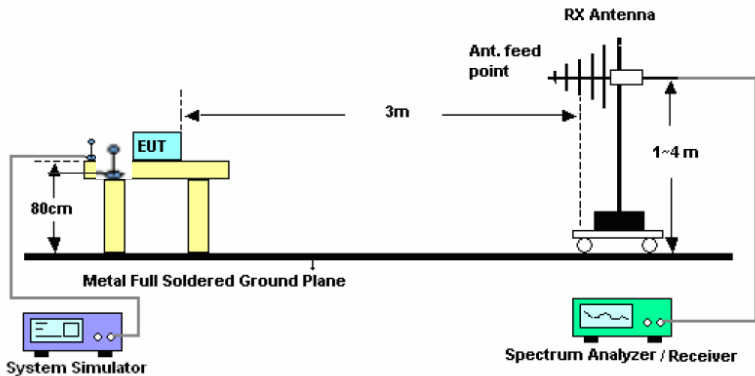
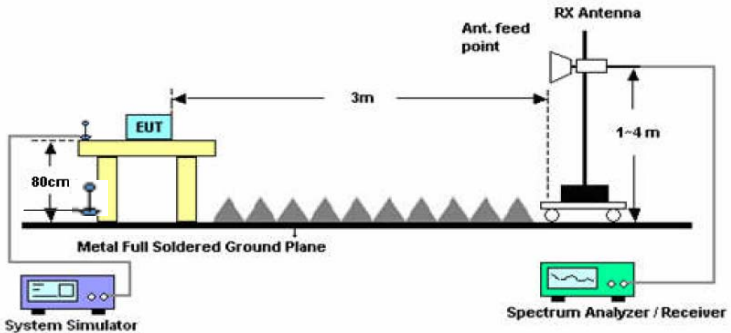


## Conducted Spurious Emission on Channel 9538



## 6.5. Effective Radiated Power and Effective Isotropic Radiated Power Measurement

### 6.5.1. Test Specification

<b>Test Requirement:</b>	FCC part 22.913(a) and FCC part 24.232(b)		
<b>Test Method:</b>	FCC part 2.1046		
<b>Receiver Setup:</b>		GSM/GPRS/EDGE	WCDMA/HSPA
	SPAN	500kHz	10MHz
	RBW	10kHz	100kHz
	VBW	30kHz	300kHz
	Detector	RMS	RMS
	Trace	Average	Average
	Average Type	Power	Power
	Sweep Count	100	100
<b>Limit:</b>	GSM850 7W ERP PCS1900 2W EIRP WCDMA Band V: 7W ERP WCDMA Band II: 2W EIRP		
<b>Test Setup:</b>	From 30MHz to 1GHz		
			
<b>Test Setup:</b>	Above 1GHz		
			

**Test Procedure:**

1. The testing follows FCC KDB 971168 D01v03 Section 5.8. and ANSI / TIA-603-D-2010 Section 2.2.17.
2. The EUT was placed on a non-conductive rotating platform 0.8 meters high in a semi-anechoic chamber. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and a spectrum analyzer with RMS detector per section 5. of KDB 971168 D01v03.
3. Key the transmitter, then rotate the EUT 360° azimuthally and record spectrum analyzer power level (LVL) measurements at angular increments that are sufficiently small to permit resolution of all peaks. If a standard radiation test site is used, raise and lower the test antenna to obtain a maximum reading at each angular increment.
4. Replace the transmitter under test with a substitution antenna. The center of the antenna should be at the same location as the center of the antenna under test.
5. Connect the antenna to a signal generator with a known output power and record the path loss (in dB) as LOSS. If a standard radiation test site is used, raise and lower the test antenna to obtain a maximum reading.  
LOSS = Generator Output Power (dBm) - Analyzer reading (dBm)
6. Determine the effective radiated output power at each angular position from the readings in steps 3) and 5) using the following equation:  
ERP (dBm) = LVL (dBm) + LOSS (dB)
7. The maximum ERP is the maximum value determined in the preceding step.
8. Calculating ERP:  
ERP (dBm) = Output Power (dBm) - Losses (dB) + Antenna Gain (dBd)  
Antenna Gain (dBd) = Antenna Gain (dBi) - 2.15  
EIRP = ERP - 2.15

**Test results:**

PASS

## 6.5.2. Test Instruments

Radiated Emission Test Site (966)				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
System simulator	R&S	CMU200	111382	Sep. 27, 2018
Spectrum Analyzer	ROHDE&SCHW ARZ	R&S	FSQ	Sep. 27, 2018
Signal Generator	HP	83623B	3614A00396	Sep. 27, 2018
Broadband Antenna	Schwarzbeck	VULB9163	340	Sep. 27, 2018
Horn Antenna	Schwarzbeck	BBHA 9120D	631	Sep. 27, 2018
Broadband Antenna	Schwarzbeck	VULB9163	412	Sep. 27, 2018
Horn Antenna	Schwarzbeck	BBHA 9120D	1201	Mar. 05, 2018
Dipole Antenna	TCT	TCT-RF	N/A	Sep. 27, 2018
Coax cable (9kHz-1GHz)	TCT	RE-low-01	N/A	Sep. 27, 2018
Coax cable (9kHz-40GHz)	TCT	RE-high-02	N/A	Sep. 27, 2018
Coax cable (9kHz-1GHz)	TCT	RE-low-03	N/A	Sep. 27, 2018
Coax cable (9kHz-40GHz)	TCT	RE-High-04	N/A	Sep. 27, 2018
Antenna Mast	Keleto	CC-A-4M	N/A	N/A
EMI Test Software	Shurple Technology	EZ-EMC	N/A	N/A

**Note:** The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

### 6.5.3. Test Data

#### Test Result of ERP

GSM850 (GSM) Radiated Power ERP					
Horizontal Polarization (Antenna Pol.)					
Frequency (MHz)	(EUT Pol.)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
824.20	H	11.88	21.66	33.54	2.26
836.60	H	12.26	21.54	33.80	2.40
848.80	H	12.18	21.46	33.64	2.31
Vertical Polarization (Antenna Pol.)					
Frequency (MHz)	(EUT Pol.)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
824.20	H	11.39	21.66	33.05	2.02
836.60	H	11.51	21.54	33.05	2.02
848.80	H	11.38	21.46	32.84	1.92

GPRS 850 (1-solt) Radiated Power ERP					
Horizontal Polarization (Antenna Pol.)					
Frequency (MHz)	(EUT Pol.)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
824.20	H	10.76	21.66	32.42	1.75
836.60	H	10.99	21.54	32.53	1.79
848.80	H	11.16	21.46	32.62	1.83
Vertical Polarization (Antenna Pol.)					
Frequency (MHz)	(EUT Pol.)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
824.20	H	10.58	21.66	32.24	1.67
836.60	H	10.21	21.54	31.75	1.50
848.80	H	10.49	21.46	31.95	1.57



EGPRS850 (1-slot) Radiated Power ERP					
Horizontal Polarization (Antenna Pol.)					
Frequency (MHz)	(EUT Pol.)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
824.40	H	6.54	21.66	28.20	0.66
836.60	H	6.21	21.54	28.75	0.75
848.80	H	6.69	21.46	29.15	0.82
Vertical Polarization (Antenna Pol.)					
Frequency (MHz)	(EUT Pol.)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
824.40	H	5.35	21.66	27.01	0.50
836.60	H	5.48	21.54	27.02	0.50
848.80	H	5.62	21.46	27.08	0.51

**Note:** All GPRS slot have been tested, but only the worst GPRS 1-slot show in this test item.

WCDMA Band V (RMC 12.2Kbps) Radiated Power ERP					
Horizontal Polarization (Antenna Pol.)					
Frequency (MHz)	(EUT Pol.)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
826.40	H	3.28	21.62	24.90	0.31
836.60	H	3.15	21.54	24.69	0.29
846.60	H	3.22	21.44	24.66	0.29
Vertical Polarization (Antenna Pol.)					
Frequency (MHz)	(EUT Pol.)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
826.40	H	2.19	21.62	23.81	0.24
836.60	H	2.31	21.54	23.85	0.24
846.60	H	2.11	21.44	23.55	0.23

\* ERP = LVL (dBm) + Correction Factor (dB) - 2.15

Correction Factor = S.G. Power - Cable loss + Antenna Gain - SPA. Reading

Test Result of EIRP

GSM1900 (GSM) Radiated Power EIRP					
Horizontal Polarization (Antenna Pol.)					
Frequency (MHz)	(EUT Pol.)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
1850.20	H	7.44	21.66	29.10	0.81
1880.00	H	7.81	21.54	29.35	0.86
1909.80	H	7.67	21.46	29.13	0.82
Vertical Polarization (Antenna Pol.)					
Frequency (MHz)	(EUT Pol.)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
1850.20	H	6.44	21.66	28.10	0.65
1880.00	H	6.58	21.54	28.12	0.65
1909.80	H	7.21	21.46	28.67	0.74

GPRS1900 (1-solt) Radiated Power EIRP					
Horizontal Polarization (Antenna Pol.)					
Frequency (MHz)	(EUT Pol.)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
1850.20	H	6.98	21.66	28.64	0.73
1880.00	H	7.01	21.54	28.55	0.72
1909.80	H	7.15	21.46	28.61	0.73
Vertical Polarization (Antenna Pol.)					
Frequency (MHz)	(EUT Pol.)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
1850.20	H	6.18	21.66	27.84	0.61
1880.00	H	6.33	21.54	27.87	0.61
1909.80	H	6.48	21.46	27.94	0.62

EGPRS1900 (1-slot) Radiated Power EIRP					
Horizontal Polarization (Antenna Pol.)					
Frequency (MHz)	(EUT Pol.)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
1850.20	H	5.26	21.66	26.92	0.49
1880.00	H	5.71	21.54	27.25	0.53
1909.80	H	5.65	21.46	27.11	0.51
Vertical Polarization (Antenna Pol.)					
Frequency (MHz)	(EUT Pol.)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
1850.20	H	4.17	21.66	25.83	0.38
1880.00	H	4.35	21.54	25.89	0.39
1909.80	H	4.12	21.46	25.58	0.36

**Note:** All GPRS slot have been tested, but only the worst GPRS 1-slot show in this test item.

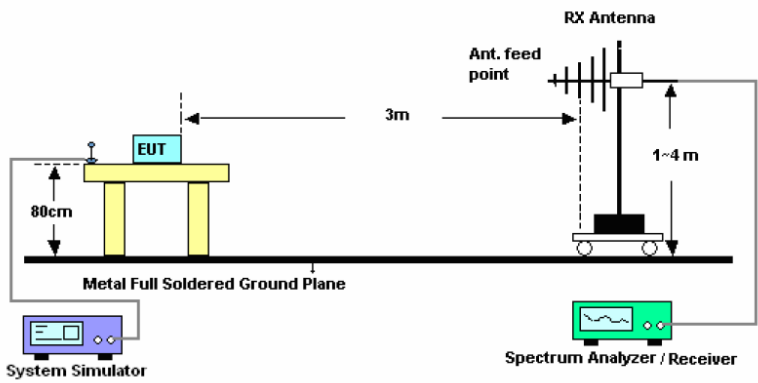
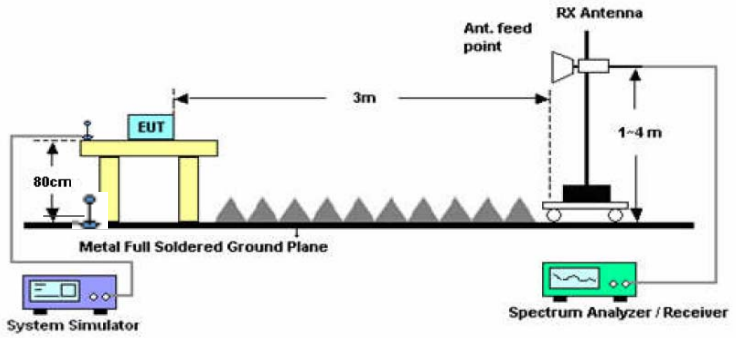
WCDMA Band II (RMC 12.2Kbps) Radiated Power EIRP					
Horizontal Polarization (Antenna Pol.)					
Frequency (MHz)	(EUT Pol.)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
1852.40	H	-11.22	31.78	20.56	0.11
1880.00	H	-11.02	31.63	20.61	0.12
1907.60	H	-11.91	31.75	19.84	0.10
Vertical Polarization (Antenna Pol.)					
Frequency (MHz)	(EUT Pol.)	LVL (dBm)	Correction Factor (dB)	ERP (dBm)	ERP (W)
1852.40	H	-10.57	31.85	21.28	0.13
1880.00	H	-10.05	31.39	21.34	0.14
1907.60	H	-10.53	31.67	21.14	0.13

\* EIRP = LVL (dBm) + Correction Factor (dB)

Correction Factor= S.G. Power - Cable loss + Substitution Antenna Gain- SPA. Reading

## 6.6. Field Strength of Spurious Radiation Measurement

### 6.6.1. Test Specification

<b>Test Requirement:</b>	FCC part 22.917(a) and FCC part 24.238(a)
<b>Test Method:</b>	FCC part 2.1053
<b>Operation mode:</b>	Refer to item 4.1
<b>Limit:</b>	-13dBm
<b>Test setup:</b>	<p>For 30MHz~1GHz</p>  <p>Above 1GHz</p> 
<b>Test Procedure:</b>	<ol style="list-style-type: none"> <li>1. The testing follows FCC KDB 971168 D01v03 Section 5.8 and ANSI / TIA-603-D-2010 Section 2.2.12.</li> <li>2. The EUT was placed on a rotatable wooden table 0.8 meters above the ground.</li> <li>3. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.</li> <li>4. The table was rotated 360 degrees to determine the position of the highest spurious emission.</li> <li>5. The height of the receiving antenna is varied between one meter and four meters to search for the maximum spurious emission for both horizontal and vertical polarizations.</li> <li>6. Make the measurement with the spectrum analyzer's</li> </ol>



	<p>RBW = 1MHz, VBW = 3MHz, taking record of maximum spurious emission.</p> <p>7. A horn antenna was substituted in place of the EUT and was driven by a signal generator.</p> <p>8. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.</p> <p>9. Taking the record of output power at antenna port.</p> <p>10. Repeat step 7 to step 8 for another polarization.</p> <p>11. <math>EIRP\ (dBm) = S.G.\ Power - Tx\ Cable\ Loss + Tx\ Antenna\ Gain</math></p> <p>12. <math>ERP\ (dBm) = EIRP - 2.15</math></p> <p>13. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.</p> <p>14. The limit line is derived from <math>43 + 10\log(P)</math> dB below the transmitter power P(Watts)</p> <p><math>= P(W) - [43 + 10\log(P)]\ (dB)</math></p> <p><math>= [30 + 10\log(P)]\ (dBm) - [43 + 10\log(P)]\ (dB)</math></p> <p><math>= -13dBm.</math></p>
<b>Test results:</b>	PASS
<b>Remark:</b>	All modulations have been tested, but only the worst modulation show in this test item.

### 6.6.2. Test Instruments

Radiated Emission Test Site (966)				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
System simulator	R&S	CMU200	111382	Sep. 27, 2018
Spectrum Analyzer	ROHDE&SCHW ARZ	R&S	FSQ	Sep. 27, 2018
Signal Generator	HP	83623B	3614A00396	Sep. 27, 2018
Broadband Antenna	Schwarzbeck	VULB9163	340	Sep. 27, 2018
Horn Antenna	Schwarzbeck	BBHA 9120D	631	Sep. 27, 2018
Broadband Antenna	Schwarzbeck	VULB9163	412	Sep. 27, 2018
Horn Antenna	Schwarzbeck	BBHA 9120D	1201	Mar. 05, 2018
Horn Antenna	Schwarzbeck	BBH 9170	582	Jun. 07, 2018
Dipole Antenna	TCT	TCT-RF	N/A	Sep. 27, 2018
Coax cable (9kHz-1GHz)	TCT	RE-low-01	N/A	Sep. 27, 2018
Coax cable (9kHz-40GHz)	TCT	RE-high-02	N/A	Sep. 27, 2018
Coax cable (9kHz-1GHz)	TCT	RE-low-03	N/A	Sep. 27, 2018
Coax cable (9kHz-40GHz)	TCT	RE-High-04	N/A	Sep. 27, 2018
Antenna Mast	Keleto	CC-A-4M	N/A	N/A
EMI Test Software	Shurple Technology	EZ-EMC	N/A	N/A

**Note:** The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

### 6.6.3. Test Data

#### Frequency Range (9 kHz-30MHz)

Frequency (MHz)	Level@3m (dB $\mu$ V/m)	Limit@3m (dB $\mu$ V/m)
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--	--	--
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**Note:** 1. Emission Level=Reading+ Cable loss-Antenna factor-Amp factor

2. The emission levels are 20 dB below the limit value, which are not reported. It is deemed to comply with the requirement

Band	GSM 850		Test channel:	Lowest
Test mode:			Temperature :	25°C
			Relative Humidity:	56%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1648.40	Vertical	-42.71	-13.00	PASS
2472.60	V	-39.36		
3296.80	V	-51.86		
1648.40	Horizontal	-42.67		
2472.60	H	-38.41		
3296.80	H	-51.98		
Band	GSM 850		Test channel:	Middle
Test mode:			Temperature :	25°C
			Relative Humidity:	56%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1673.20	Vertical	-41.65	-13.00	PASS
2509.80	V	-44.71		
3346.40	V	-52.45		
1673.20	Horizontal	-41.67		
2509.80	H	-39.89		
3346.40	H	-52.23		
Band	GSM 850		Test channel:	Highest
Test mode:			Temperature :	25°C
			Relative Humidity:	56%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1697.60	Vertical	-40.81	-13.00	PASS
2546.40	V	-44.46		
3395.20	V	-52.52		
1697.60	Horizontal	-41.42		
2546.40	H	-40.92		
3395.20	H	-52.41		



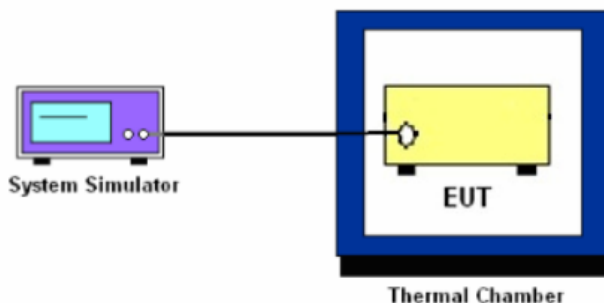
Band	PCS 1900		Test channel:	Lowest
Test mode:			Temperature :	25°C
			Relative Humidity:	56%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3700.40	Vertical	-49.66	-13.00	PASS
5550.60	V	-47.31		
7400.80	V	-52.93		
3700.40	Horizontal	-49.88		
5550.60	H	-50.82		
7400.80	H	-52.50		
Test mode:	PCS 1900		Test channel:	Middle
Test mode:			Temperature :	25°C
			Relative Humidity:	56%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3760.00	Vertical	-49.52	-13.00	PASS
5640.00	V	-53.48		
7520.00	V	-45.83		
3760.00	Horizontal	-47.18		
5640.00	H	-53.23		
7520.00	H	-53.41		
Test mode:	PCS 1900		Test channel:	Highest
Test mode:			Temperature :	25°C
			Relative Humidity:	56%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3819.60	Vertical	-47.44	-13.00	PASS
5729.40	V	-50.16		
7639.20	V	-53.12		
3819.60	Horizontal	-48.18		
5729.40	H	-52.36		
7639.20	H	-53.14		

Band	WCDMA Band V		Test channel:	Lowest
Test mode:	RMC 12.2Kbps Link (QPSK)		Temperature :	25°C
			Relative Humidity:	56%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1652.80	Vertical	-52.22	-13.00	PASS
2479.20	V	-53.12		
3305.60	V	-52.77		
1652.80	Horizontal	-53.42		
2479.20	H	-50.93		
3305.60	H	-52.93		
Test mode:	WCDMA Band V		Test channel:	Middle
Test mode:	RMC 12.2Kbps Link (QPSK)		Temperature :	25°C
			Relative Humidity:	56%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1673.20	Vertical	-53.13	-13.00	PASS
2509.80	V	-52.82		
3346.40	V	-52.72		
1673.20	Horizontal	-54.78		
2509.80	H	-51.47		
3346.40	H	-53.82		
Test mode:	WCDMA Band V		Test channel:	Highest
Test mode:	RMC 12.2Kbps Link (QPSK)		Temperature :	25°C
			Relative Humidity:	56%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1693.20	Vertical	-56.22	-13.00	PASS
2539.80	V	-51.27		
3386.40	V	-52.92		
1693.20	Horizontal	-52.06		
2539.80	H	-51.82		
3386.40	H	-54.09		

Band	WCDMA Band II		Test channel:	Lowest
Test mode:	RMC 12.2Kbps Link (QPSK)		Temperature :	25°C
			Relative Humidity:	56%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3704.80	Vertical	-51.41	-13.00	PASS
5557.20	V	-53.06		
7409.60	V	-53.06		
3704.80	Horizontal	-53.98		
5557.20	H	-51.91		
7409.60	H	-53.22		
Test mode:	WCDMA Band II		Test channel:	Middle
Test mode:	RMC 12.2Kbps Link (QPSK)		Temperature :	25°C
			Relative Humidity:	56%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3760.00	Vertical	-53.62	-13.00	PASS
5640.00	V	-52.35		
7520.00	V	-52.36		
3760.00	Horizontal	-54.15		
5640.00	H	-50.73		
7520.00	H	-53.51		
Test mode:	WCDMA Band II		Test channel:	Highest
Test mode:	RMC 12.2Kbps Link (QPSK)		Temperature :	25°C
			Relative Humidity:	56%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3815.20	Vertical	-55.92	-13.00	PASS
5722.80	V	-52.17		
7630.40	V	-52.27		
3815.20	Horizontal	-52.83		
5722.80	H	-51.82		
7630.40	H	-54.80		

## 6.7. Frequency Stability Measurement

### 6.7.1. Test Specification

<b>Test Requirement:</b>	FCC Part 2.1055 ; FCC Part 22.355 ; FCC Part 24.235
<b>Test Method:</b>	FCC Part 2.1055(a)(1)(b)
<b>Operation mode:</b>	Refer to item 4.1
<b>Limit:</b>	$\pm 2.5$ ppm
<b>Test Setup:</b>	 <p>The diagram shows a purple 'System Simulator' connected by a black line to a yellow 'EUT' (Equipment Under Test). The EUT is positioned inside a blue-outlined 'Thermal Chamber'.</p>
<b>Test Procedure:</b>	<p><b>Test Procedures for Temperature Variation</b></p> <ol style="list-style-type: none"> <li>1. The testing follows FCC KDB 971168 D01v03 Section 9.0.</li> <li>2. The EUT was set up in the thermal chamber and connected with the system simulator.</li> <li>3. With power OFF, the temperature was decreased to -30°C and the EUT was stabilized before testing. Power was applied and the maximum change in frequency was recorded within one minute.</li> <li>4. With power OFF, the temperature was raised in 10°C steps up to 50°C. The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute.</li> </ol> <p><b>Test Procedures for Voltage Variation</b></p> <ol style="list-style-type: none"> <li>1. The testing follows FCC KDB 971168 v02r02 Section 9.0.</li> <li>2. The EUT was placed in a temperature chamber at 25±5° C and connected with the system simulator.</li> <li>3. The power supply voltage to the EUT was varied from BEP to 115% of the nominal value measured at the input to the EUT.</li> <li>4. The variation in frequency was measured for the worst case.</li> </ol>
<b>Test Result:</b>	PASS
<b>Remark:</b>	All three channels of all modulations have been tested, but only the worst channel and the worst modulation show in this test item.



### 6.7.2. Test Instruments

Equipment	Manufacturer	Model	Serial Number	Calibration Due
System simulator	R&S	CMU200	111382	Sep. 27, 2018
Programable tempratuce and humidity chamber	JQ	JQ-2000	N/A	Sep. 27, 2018
DC power supply	Kingrang	KR3005K 30V/5A	N/A	Sep. 27, 2018
RF cable (9kHz-40GHz)	TCT	RE-04	N/A	Sep. 27, 2018
Antenna Connector	TCT	RFC-03	N/A	Sep. 27, 2018

**Note:** The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

### 6.7.3. Test Data

#### Test Result of Temperature Variation

<b>Band :</b>	<b>GSM 850</b>	<b>Channel:</b>	<b>190</b>
<b>Limit (ppm) :</b>	<b>2.5</b>	<b>Frequency:</b>	<b>836.6MHz</b>
<b>Temperature (°C)</b>	<b>Deviation (ppm)</b>	<b>Result</b>	
50	0.015	PASS	
40	0.013		
30	0.012		
20	0.009		
10	0.011		
0	0.012		
-10	0.006		
-20	0.009		
-30	0.011		

<b>Band :</b>	<b>GSM 1900</b>	<b>Channel:</b>	<b>661</b>
<b>Limit (ppm) :</b>	<b>Note</b>	<b>Frequency:</b>	<b>1880MHz</b>
<b>Temperature (°C)</b>	<b>Deviation (ppm)</b>	<b>Result</b>	
50	0.025	PASS	
40	0.021		
30	0.019		
20	0.018		
10	0.022		
0	0.023		
-10	0.016		
-20	0.017		
-30	0.022		

**Note:** The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.

<b>Band :</b>	<b>WCDMA Band V</b>	<b>Channel:</b>	<b>4183</b>
<b>Limit (ppm) :</b>	<b>2.5ppm</b>	<b>Frequency:</b>	<b>836.6MHz</b>
<b>Temperature (°C)</b>	<b>RMC 12.2Kbps Deviation (ppm)</b>	<b>Result</b>	
50	0.019	PASS	
40	0.014		
30	0.001		
20	0.007		
10	0.013		
0	0.012		
-10	0.011		
-20	0.012		
-30	0.014		

<b>Band :</b>	<b>WCDMA Band II</b>	<b>Channel:</b>	<b>9400</b>
<b>Limit (ppm) :</b>	<b>Note</b>	<b>Frequency:</b>	<b>1880MHz</b>
<b>Temperature (°C)</b>	<b>RMC 12.2Kbps Deviation (ppm)</b>	<b>Result</b>	
50	0.017	PASS	
40	0.018		
30	0.014		
20	0.012		
10	0.016		
0	0.022		
-10	0.015		
-20	0.018		
-30	0.012		

**Note:** The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.

### Test Result of Voltage Variation

Band & Channel	Mode	Voltage (Volt)	Deviation (ppm)	Limit (ppm)	Result
GSM 850 CH190	GSM	4.2	+0.016	2.5	PASS
		3.7	+0.009		
		BEP	+0.013		
GSM 850 CH190	EGPRS Class 12	4.2	+0.021	2.5	
		3.7	+0.022		
		BEP	+0.019		
GSM 1900 CH661	GSM	4.2	+0.021	(Note 3.)	
		3.7	+0.025		
		BEP	+0.016		
GSM 1900 CH661	EGPRS Class 12	4.2	+0.002	(Note 3.)	
		3.7	+0.014		
		BEP	+0.020		
WCDMA Band V CH4182	RMC 12.2Kbps	4.2	-0.021		
		3.7	-0.017		
		BEP	-0.014		
WCDMA Band II CH9400	RMC 12.2Kbps	4.2	-0.014	(Note 3.)	
		3.7	-0.015		
		BEP	-0.012		

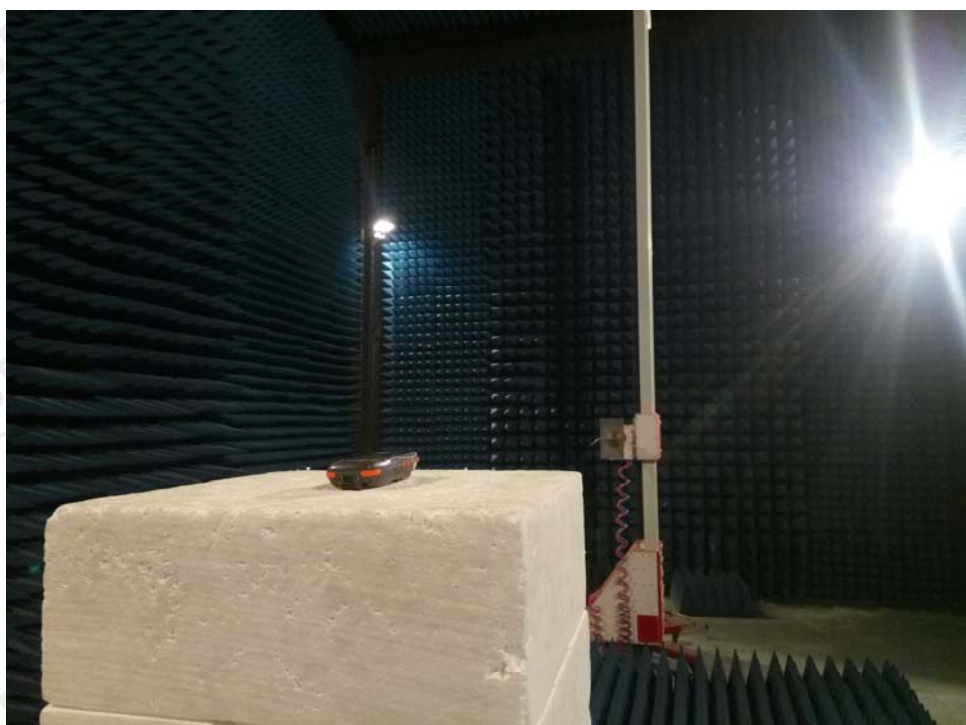
**Note:**

1. Normal Voltage = 3.7V.
2. Battery End Point (BEP) = 3.50 V.
3. The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.



## Appendix A: Photographs of Test Setup

### Radiated Emission



## Appendix B: Photographs of EUT

Refer to test report TCT171225E024

**\*\*\*\*\*END OF REPORT\*\*\*\*\***