FCC PART 22H, PART 24E

TEST REPORT

For

Guizhou Fortuneship Technology Co., Ltd

No. 4 Plant, High-tech Industrial Park, Xinpu Economic Development Zone, Zunyi, China

FCC ID: 2ALQJ-SKY

Report Type:	Product Type:
Original Report	Smart Phone

Report Number:	RSZ170704002-00D
Report Date:	2017-07-31
Reviewed By:	Oscar Ye Engineer
Prepared By:	Bay Area Compliance Laboratories Corp. (Kunshan) No.248 Chenghu Road, Kunshan, Jiangsu province, China Tel: +86-0512-86175000 Fax: +86-0512-88934268 www.baclcorp.com.cn

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Guizhou Fortuneship Technology Co., Ltd's* product, model number: *SKY (FCC ID: 2ALQJ-SKY)* in this report is a *Smart Phone* which was measured approximately: 144.6 mm (L) * 71.6 mm (W) * 8.3 mm (H), rated with input voltage: DC 3.8V from Li-ion battery or DC 5V from adapter.

Adapter Information:
Input: AC 100-240V, 50/60Hz, 0.2A
Output: DC 5V, 1.0A

** All measurement and test data in this report was gathered from production sample serial number: 1701572 (Assigned by BACL, Kunshan). The EUT supplied by the applicant was received on 2017-07-04.*

Objective

This type approval report is prepared on behalf of *Guizhou Fortuneship Technology Co., Ltd* in accordance with Part 2, Part 22-Subpart H, Part 24-Subpart E of the Federal Communication Commission's rules.

The objective is to determine the compliance of EUT with FCC rules for output power, modulation characteristic, occupied bandwidth, and spurious emission at antenna terminal, spurious radiated emission, frequency stability, and band edge.

Related Submittal(s)/Grant(s)

FCC Part 15B JBP, Part 15.247 DSS & DTS submissions with FCC ID: 2ALQJ-SKY.

Test Methodology

All tests and measurements indicated in this document were performed in accordance with the Code of Federal Regulations Title 47 Part 2, Sub-Part J as well as the following parts:

Part 22 Subpart H - Public Mobile Services
Part 24 Subpart E - Personal Communication Services

Applicable Standards: TIA/EIA 603-D.

All emissions measurement was performed at Bay Area Compliance Laboratories Corp. (Kunshan). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Measurement Uncertainty

Item		Uncertainty
RF conducted test with spectrum		±0.9dB
RF Output Power with Power meter		±0.5dB
Radiated emission	30MHz~1GHz	±5.91dB
	Above 1G	±4.92dB
Occupied Bandwidth		±0.5kHz
Temperature		±1.0℃
Humidity		±6%

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Kunshan) to collect test data is located on the No.248 Chenghu Road, Kunshan, Jiangsu province, China

Bay Area Compliance Laboratories Corp. (Kunshan) has been accredited to ISO/IEC 17025 by CNAS(Lab code: L9963). And accredited to ISO/IEC 17025 by A2LA(Lab code: 4323.01), the FCC Designation No. CN1185 under the KDB 974614 D01.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 815570. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

Bay Area Compliance Laboratories Corp. (Kunshan) was registered with ISED Canada under ISED Canada Registration Number 3062E.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The EUT was configured for testing according to TIA/EIA-603-D.

The final qualification test was performed with the EUT operating at normal mode.

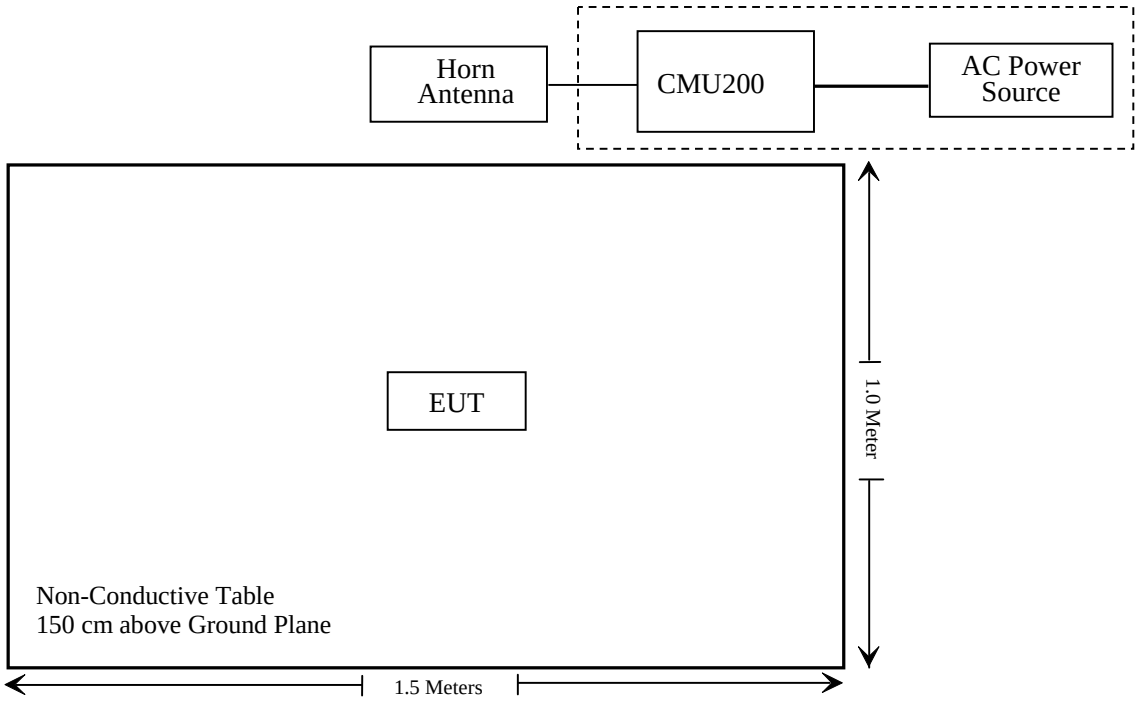
Equipment Modifications

No modification was made to the EUT.

Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	110605

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§1.1307, §2.1093	RF Exposure (SAR)	Compliance*
§2.1046; § 22.913 (a); § 24.232 (c)	RF Output Power	Compliance
§ 2.1047	Modulation Characteristics	Not Applicable
§ 2.1049; § 22.905 § 22.917; § 24.238	Bandwidth	Compliance
§ 2.1051, § 22.917 (a); § 24.238 (a)	Spurious Emissions at Antenna Terminal	Compliance
§ 2.1053 § 22.917 (a); § 24.238 (a)	Field Strength of Spurious Radiation	Compliance
§ 22.917 (a); § 24.238 (a)	Out of band emission, Band Edge	Compliance
§ 2.1055 § 22.355; § 24.235	Frequency stability vs. temperature Frequency stability vs. voltage	Compliance

Note: * Please refer to SAR report released by BACL, report number: RSZ170704002-20.

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Radiated Emission Test					
Sonoma Instrunent	Amplifier	330	171377	2016-12-12	2017-12-12
Rohde & Schwarz	EMI Test Receiver	ESCI	100195	2016-11-25	2017-11-25
Sunol Sciences	Broadband Antenna	JB3	A090314-2	2016-01-09	2019-01-08
Sunol Sciences	Broadband Antenna	JB3	A090314-1	2016-01-09	2019-01-08
Narda	Pre-amplifier	AFS42-00101800	2001270	2016-09-08	2017-09-08
EMCO	Horn Antenna	3116	00084159	2016-10-18	2019-10-17
Rohde & Schwarz	Signal Analyzer	FSIQ26	100048	2016-11-25	2017-11-25
ETS	Horn Antenna	3115	6229	2016-12-12	2019-12-12
ETS	Horn Antenna	3115	9311-4159	2016-01-11	2019-01-10
R&S	Auto test Software	EMC32	V 09.10.0	NCR	NCR
haojintech	Coaxial Cable	Cable-1	001	2016-12-12	2017-12-12
haojintech	Coaxial Cable	Cable-2	002	2016-12-12	2017-12-12
haojintech	Coaxial Cable	Cable-3	003	2016-12-12	2017-12-12
MICRO-COAX	Coaxial Cable	Cable-4	004	2016-12-12	2017-12-12
MICRO-COAX	Coaxial Cable	Cable-5	005	2016-12-12	2017-12-12
MICRO-COAX	Coaxial Cable	Cable-7	007	2016-12-12	2017-12-12
HP	Signal Generator	8341B	2624A00116	2016-08-29	2017-08-29
RF Conducted test					
BACL	TS 8997 Cable-01	T-KS-EMC086	T-KS-EMC086	2016-12-09	2017-12-08
BACL	RF cable	KS-LAB-012	KS-LAB-012	2016-12-15	2017-12-14
WEINSCHEL	3dB Attenuator	5326	N/A	2017-06-18	2018-06-18
Rohde & Schwarz	Signal Analyzer	FSIQ26	836131/009	2016-09-21	2017-09-21
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	110605	2016-11-25	2017-11-25
HONOVA	Power Splitter	ZFRSC-14-S+	019411452	2017-06-12	2018-06-12

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Kunshan) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

FCC §1.1307 & §2.1093 - RF EXPOSURE

Applicable Standard

FCC§1.1310 and §2.1093.

Test Result

Compliance, please refer to the SAR report: RSZ170704002-20.

FCC §2.1047 - MODULATION CHARACTERISTIC

According to FCC § 2.1047(d), Part 22H & 24E there is no specific requirement for digital modulation, therefore modulation characteristic is not presented.

FCC § 2.1046, § 22.913 (a) & § 24.232 (c) - RF OUTPUT POWER

Applicable Standard

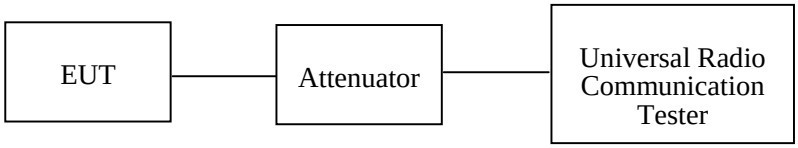
According to FCC §2.1046 and §22.913 (a), the ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

According to FCC §2.1046 and §24.232 (c), mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications.

Test Procedure

Conducted method:

The RF output of the transmitter was connected to the wireless test set and the spectrum analyzer through sufficient attenuation.



Radiated method:

TIA 603-D section 2.2.17

Test Data

Environmental Conditions

Temperature:	25 ℃
Relative Humidity:	46 %
ATM Pressure:	101.0 kPa

The testing was performed by Ada Yu on 2017-07-07.

Conducted Power

Cellular Band (Part 22H)

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)	Limit (dBm)
GSM	128	824.2	32.92	38.45
	190	836.6	32.92	38.45
	251	848.8	32.73	38.45

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	
GPRS	128	824.2	32.93	32.09	30.08	28.83	38.45
	190	836.6	32.97	32.06	30.20	28.86	38.45
	251	848.8	32.82	31.97	30.04	28.83	38.45

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	
EGPRS	128	824.2	28.38	26.99	24.39	23.01	38.45
	190	836.6	28.39	27.10	24.51	23.12	38.45
	251	848.8	28.36	27.03	24.41	23.06	38.45

Mode	Test Condition	Test Mode	3GPP Sub Test	Average Output Power (dBm)		
				Low Frequency	Middle Frequency	High Frequency
WCDMA (Band V)	Normal	RMC12.2k		22.20	22.10	22.02
		HSDPA	1	21.25	21.07	20.98
			2	21.20	21.03	20.89
			3	21.34	21.11	21.05
			4	21.22	20.97	20.94
		HSUPA	1	21.27	21.07	21.00
			2	21.16	21.00	20.89
			3	21.36	21.19	21.08
			4	21.20	20.99	20.92
			5	21.39	21.19	21.05
		HSPA+	1	21.32	21.17	21.03

PCS Band (Part 24E)

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)	Limit (dBm)
GSM	512	1850.2	29.22	33
	661	1880.0	29.21	33
	810	1909.8	29.29	33

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	
GPRS	512	1850.2	29.27	28.35	26.39	25.19	33
	661	1880.0	29.26	28.34	26.40	25.33	33
	810	1909.8	29.32	28.41	26.63	25.26	33

Mode	Channel	Frequency (MHz)	Average Output Power (dBm)				Limit (dBm)
			1 slot	2 slots	3 slots	4 slots	
EGPRS	512	1850.2	25.57	24.42	22.02	20.70	33
	661	1880.0	25.95	24.78	22.44	21.18	33
	810	1909.8	26.42	25.13	22.91	21.40	33

Mode	Test Condition	Test Mode	3GPP Sub Test	Average Output Power (dBm)		
				Low Frequency	Middle Frequency	High Frequency
WCDMA (Band II)	Normal	RMC12.2k		21.57	21.60	21.63
		HSDPA	1	20.45	20.45	20.66
			2	20.41	20.38	20.58
			3	20.52	20.54	20.75
			4	20.40	20.37	20.58
		HSUPA	1	20.51	20.49	20.67
			2	20.48	20.38	20.56
			3	20.55	20.55	20.72
			4	20.40	20.45	20.55
			5	20.56	20.56	20.73
		HSPA+	1	20.59	20.59	20.73

Peak-to-average ratio (PAR)

Cellular Band

Mode	Channel	PAR (dB)	Limit (dB)
GSM	Low	0.25	13
	Middle	0.17	13
	High	0.18	13

Mode	Channel	PAR (dB)	Limit (dB)
EGPRS	Low	0.31	13
	Middle	0.34	13
	High	0.22	13

Mode	Channel	PAR (dB)	Limit (dB)
WCDMA (BPSK)	Low	2.81	13
	Middle	3.25	13
	High	2.82	13
HSDPA (16QAM)	Low	3.62	13
	Middle	3.80	13
	High	3.26	13
HSUPA (BPSK)	Low	3.63	13
	Middle	3.72	13
	High	3.29	13

PCS Band

Mode	Channel	PAR (dB)	Limit (dB)
GSM	Low	0.18	13
	Middle	0.08	13
	High	0.16	13

Mode	Channel	PAR (dB)	Limit (dB)
EGPRS	Low	0.29	13
	Middle	0.21	13
	High	0.41	13

Mode	Channel	PAR (dB)	Limit (dB)
RMC (BPSK)	Low	3.76	13
	Middle	3.76	13
	High	3.62	13
HSDPA (16QAM)	Low	4.54	13
	Middle	4.52	13
	High	3.93	13
HSUPA (BPSK)	Low	4.89	13
	Middle	4.29	13
	High	4.12	13

Radiated Power

GSM Mode:

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	FCC Part 22H/24E	
			Height (m)	Polar (H/V)	Level (dBm)	Cable loss (dB)	Antenna Gain (dB)		Limit (dBm)	Margin (dB)
ERP for Cellular Band (Part 22H), Middle Channel										
836.6	90.04	282	1	H	20.3	0.26	4.75	24.79	38.45	13.66
836.6	99.26	128	2.4	V	25.5	0.26	4.75	29.99	38.45	8.46
EIRP for PCS Band (Part 24E), Middle Channel										
1880.00	73.19	172	2.3	H	11.7	0.45	8.84	20.09	33	12.91
1880.00	83.32	142	2.1	V	19.6	0.45	8.84	27.99	33	5.01

EGRPS Mode:

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	FCC Part 22H/24E	
			Height (m)	Polar (H/V)	Level (dBm)	Cable loss (dB)	Antenna Gain (dB)		Limit (dBm)	Margin (dB)
ERP for Cellular Band (Part 22H), Middle Channel										
836.6	85.84	32	1.5	H	16.1	0.26	4.75	20.59	38.45	17.86
836.6	94.66	139	2.4	V	20.9	0.26	4.75	25.39	38.45	13.06
EIRP for PCS Band (Part 24E), Middle Channel										
1880.00	73.09	147	2.6	H	11.6	0.45	8.84	19.99	33	13.01
1880.00	79.82	129	2.4	V	16.1	0.45	8.84	24.49	33	8.51

WCDMA Mode:

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	FCC Part 22H/24E	
			Height (m)	Polar (H/V)	Level (dBm)	Cable loss (dB)	Antenna Gain (dB)		Limit (dBm)	Margin (dB)
ERP for WCDMA Band V (Part 22H), Middle Channel										
836.6	80.54	49	1.6	H	10.8	0.26	4.75	15.29	38.45	23.16
836.6	90.46	264	2.2	V	16.7	0.26	4.75	21.19	38.45	17.26
EIRP for WCDMA Band II (Part 24E), Middle Channel										
1880.00	70.09	173	1.8	H	8.6	0.45	8.84	16.99	33	16.01
1880.00	77.32	197	2.2	V	13.6	0.45	8.84	21.99	33	11.01

Note:
All above data were tested with no amplifier.
Absolute Level = Substituted Level - Cable loss + Antenna Gain
Margin = Limit- Absolute Level

FCC §2.1049, §22.917, §22.905 & §24.238 - BANDWIDTH

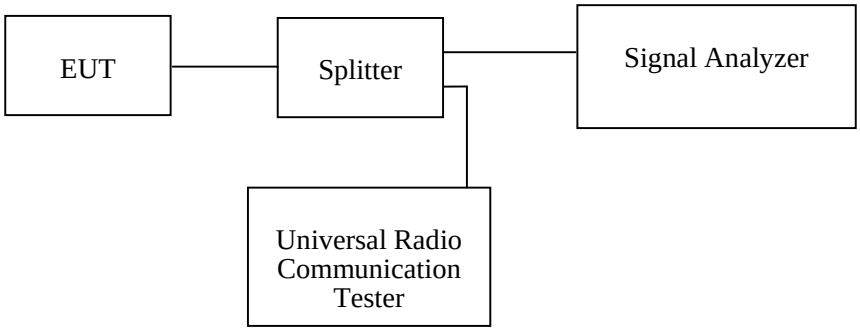
Applicable Standard

FCC §2.1049, §22.917, §22.905 and §24.238.

Test Procedure

The RF output of the transmitter was connected to the simulator and the spectrum analyzer through sufficient attenuation.

The resolution bandwidth of the spectrum analyzer was set at 5 kHz (GSM) & 100 kHz (WCDMA) and the 26 dB & 99% bandwidth was recorded.



Test Data

Environmental Conditions

Temperature:	24 ℃
Relative Humidity:	54 %
ATM Pressure:	101.0 kPa

The testing was performed by Ada Yu on 2017-07-09.

EUT operation mode: Transmitting

Test Result: Compliance. Please refer to the following tables and plots.

Cellular Band (Part 22H)

Mode	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
GSM(GMSK)	836.6	242.5	316.6

Mode	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
EGPRS	836.6	250.5	314.6

Mode	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
RMC (BPSK)	836.6	4.148	4.709
HSUPA (BPSK)	836.6	4.148	4.729
HSDPA (16QAM)	836.6	4.168	4.709

PCS Band (Part 24E)

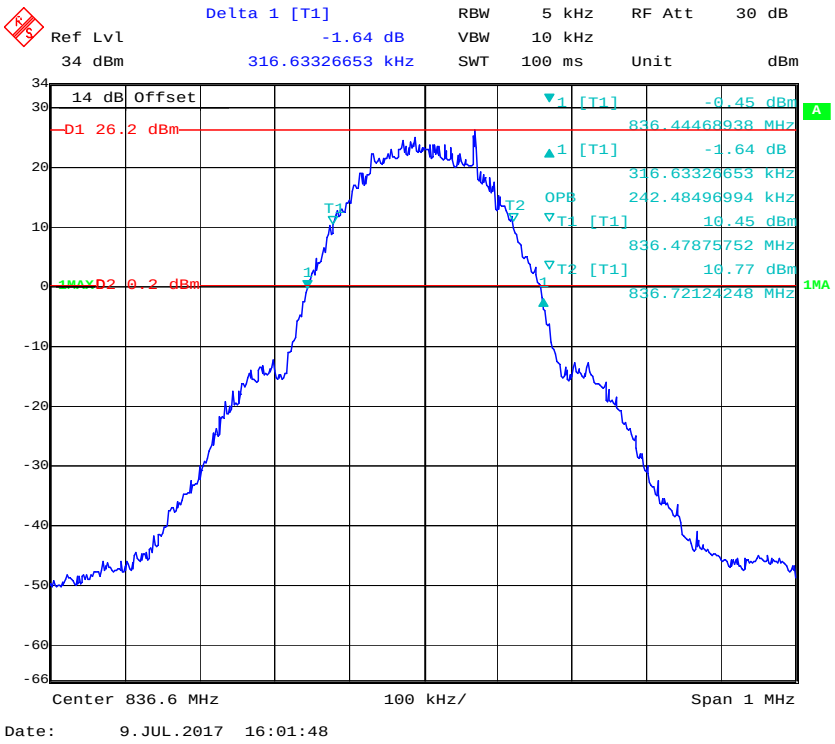
Mode	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
GSM(GMSK)	1880.0	244.5	316.6

Mode	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
EGPRS	1880.0	250.5	330.7

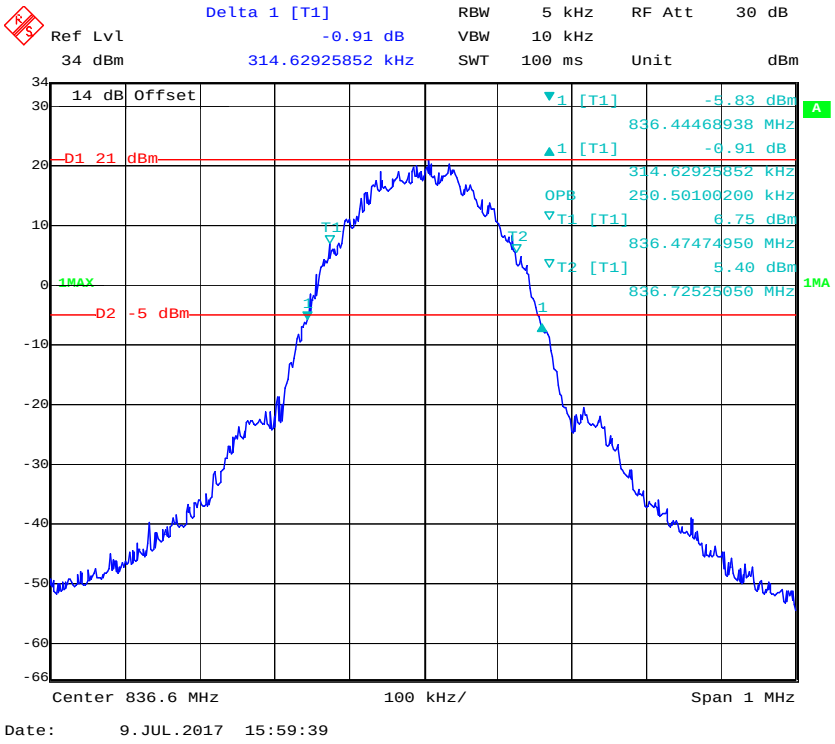
Mode	Frequency (MHz)	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
RMC (BPSK)	1880.0	4.168	4.729
HSUPA (BPSK)	1880.0	4.168	4.709
HSDPA (16QAM)	1880.0	4.168	4.729

Cellular Band (Part 22H)

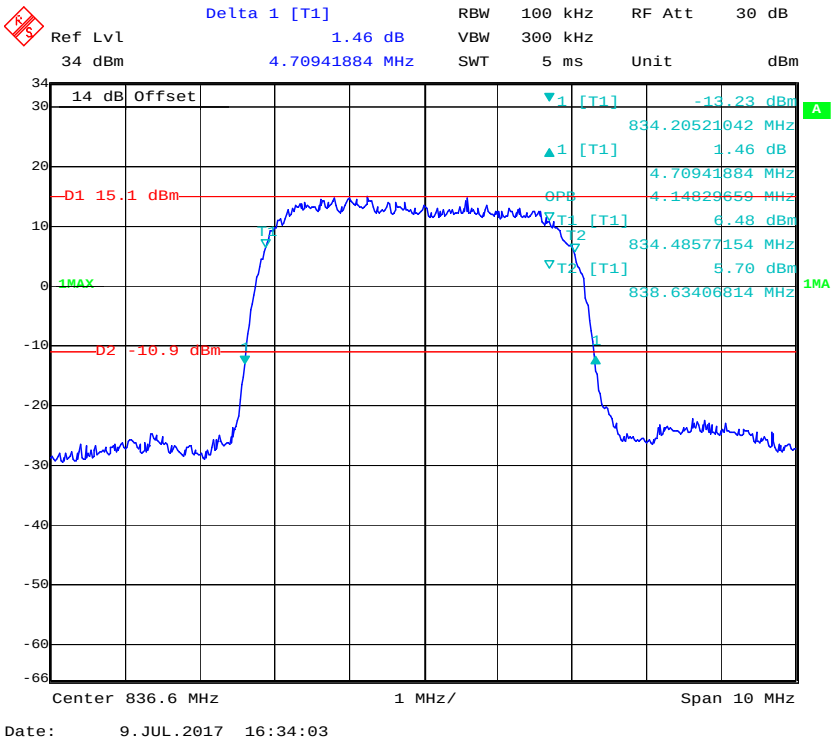
99% Occupied Bandwidth & 26 dB Emissions Bandwidth for GSM (GMSK) Mode



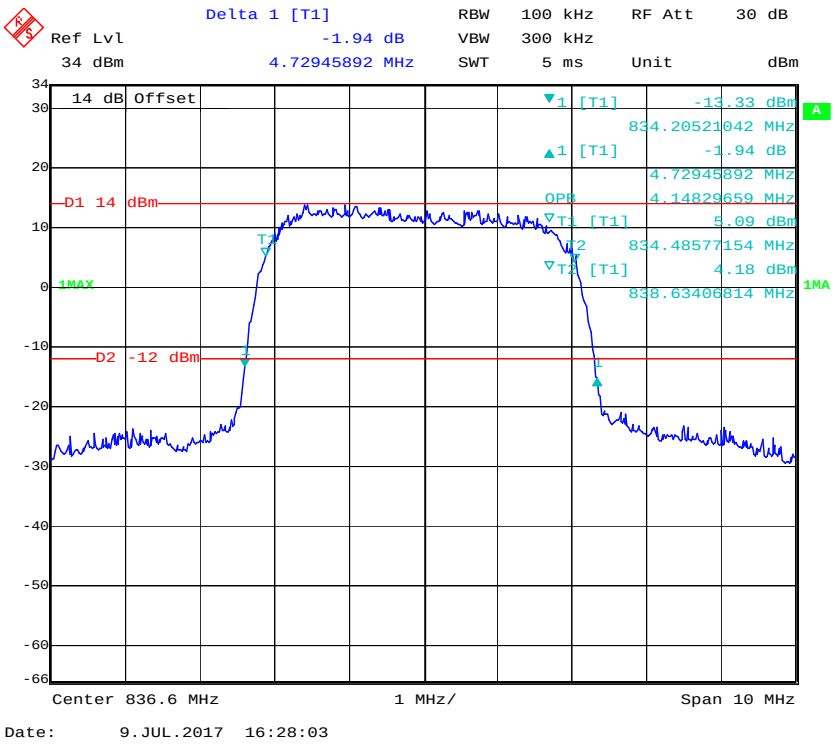
26 dB Emissions &99% Occupied Bandwidth for EGPRS (8PSK) Mode



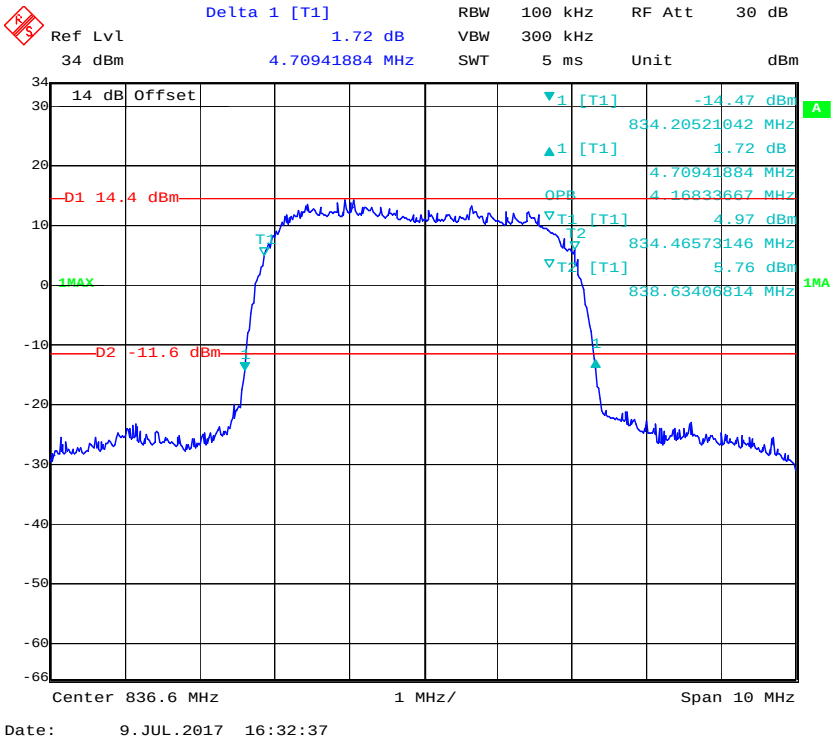
99% Occupied Bandwidth & 26 dB Emissions Bandwidth for RMC (BPSK) Mode



99% Occupied Bandwidth & 26 dB Emissions Bandwidth for HSUPA (BPSK) Mode

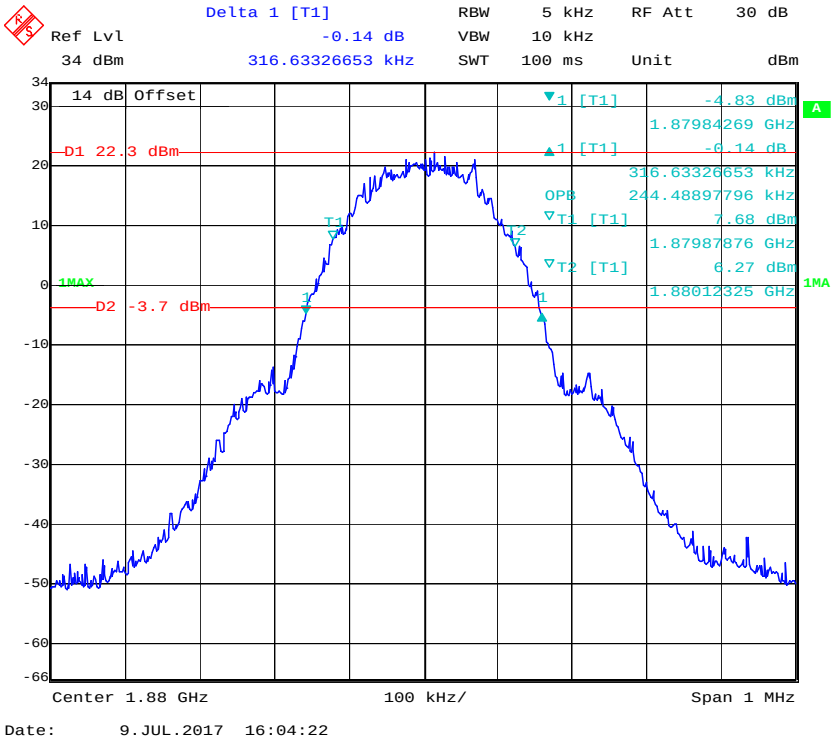


99% Occupied Bandwidth & 26 dB Emissions Bandwidth for HSDPA (16QAM) Mode

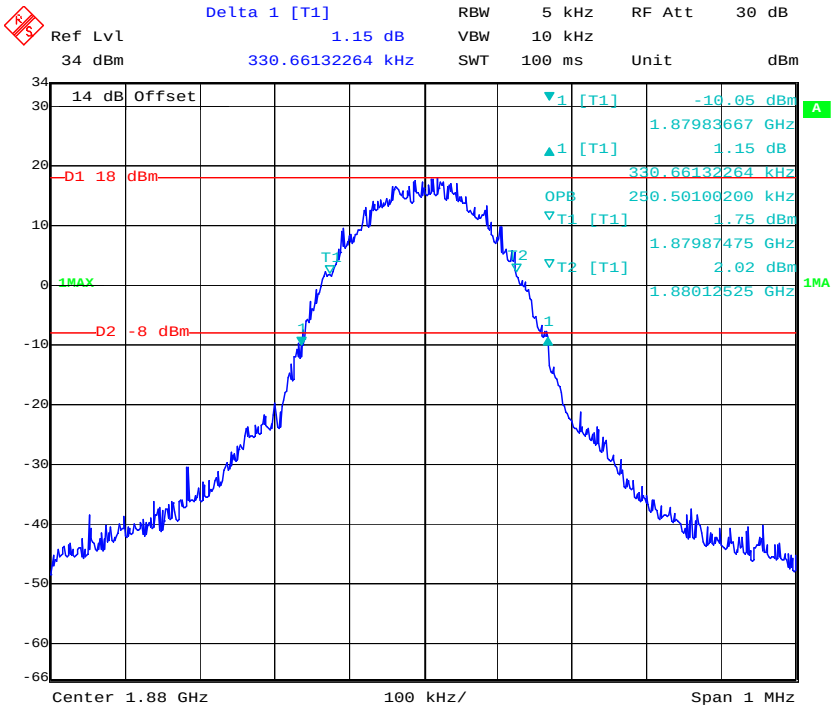


PCS Band (Part 24E)

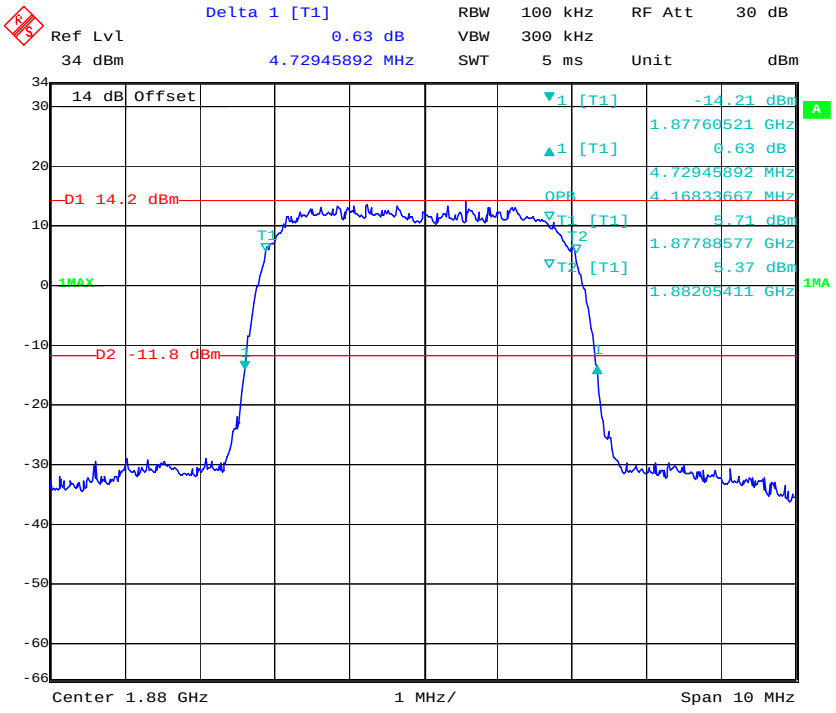
99% Occupied Bandwidth & 26 dB Emissions Bandwidth for GSM (GMSK) Mode



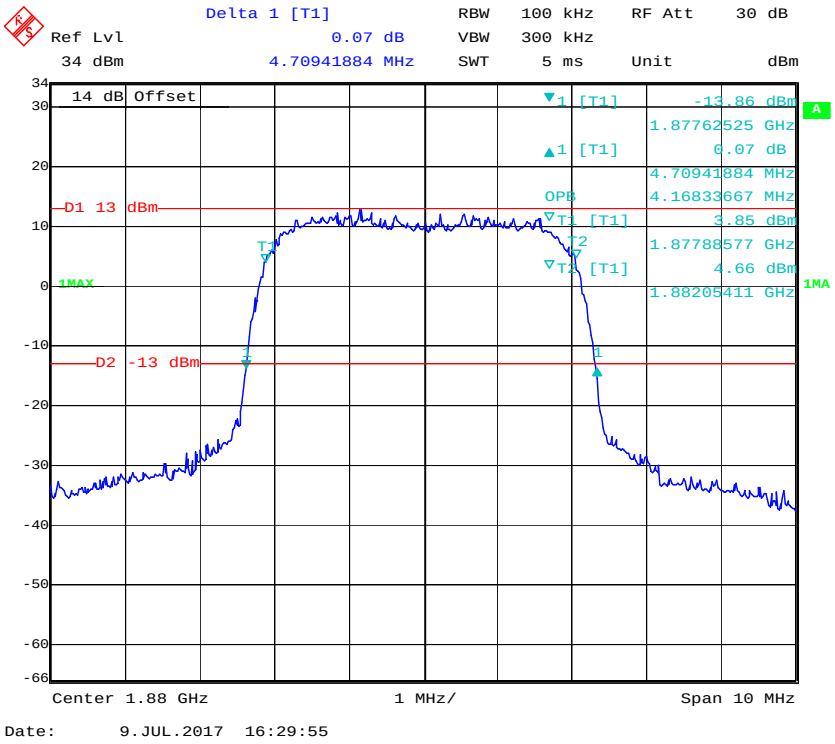
26 dB Emissions &99% Occupied Bandwidth for EGPRS (8PSK) Mode



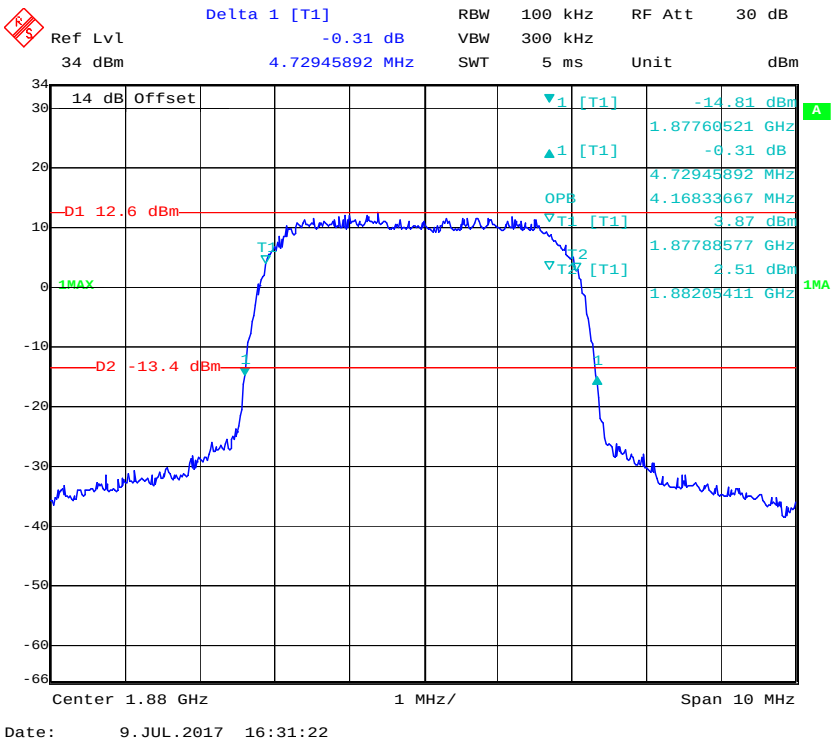
99% Occupied Bandwidth & 26 dB Emissions Bandwidth for RMC (BPSK) Mode



99% Occupied Bandwidth & 26 dB Emissions Bandwidth for HSUPA (BPSK) Mode



99% Occupied Bandwidth & 26 dB Emissions Bandwidth for HSDPA (16QAM) Mode



FCC §2.1051, §22.917(a) & §24.238(a) - SPURIOUS EMISSIONS AT ANTENNA TERMINALS

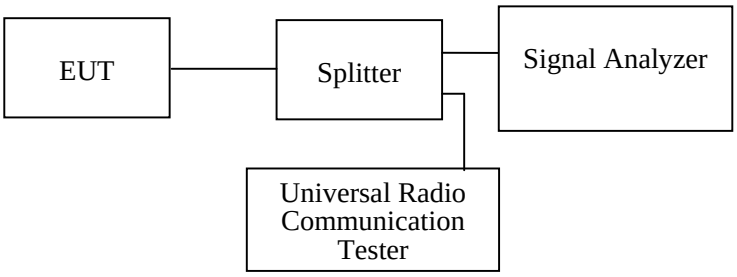
Applicable Standard

FCC §2.1051, §22.917(a) and §24.238(a).

The spectrum was to be investigated to the tenth harmonics of the highest fundamental frequency as specified in § 2.1051.

Test Procedure

The RF output of the transceiver was connected to a spectrum analyzer and simulator through appropriate attenuation. The resolution bandwidth of the spectrum analyzer was set at 1MHz. Sufficient scans were taken to show any out of band emissions up to 10th harmonic.



Test Data

Environmental Conditions

Temperature:	24 ℃
Relative Humidity:	54 %
ATM Pressure:	101.0 kPa

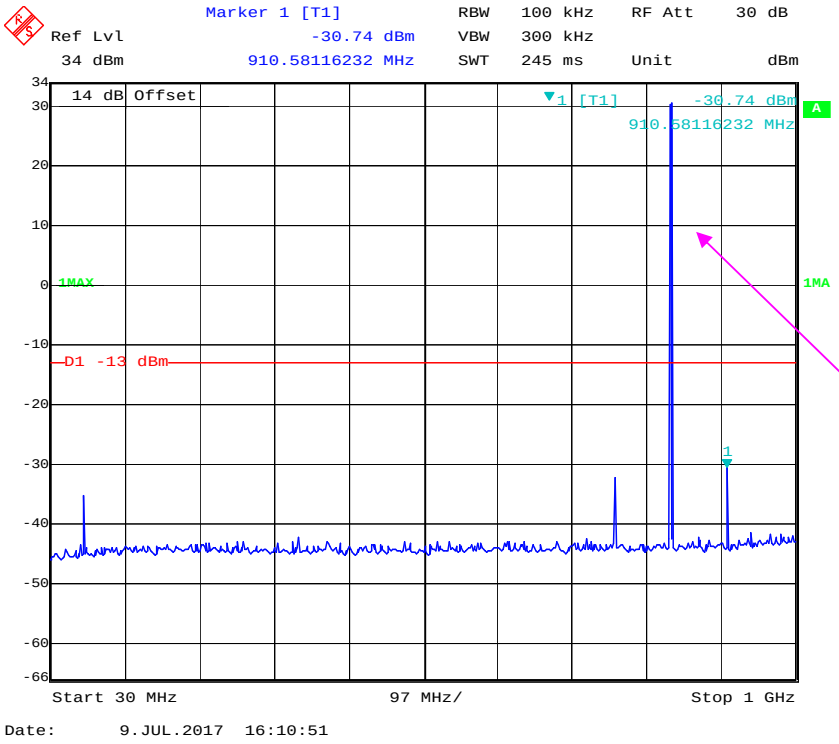
The testing was performed by Ada Yu on 2017-07-09.

EUT operation mode: Transmitting

Test result: Compliance, please refer to the following plots.

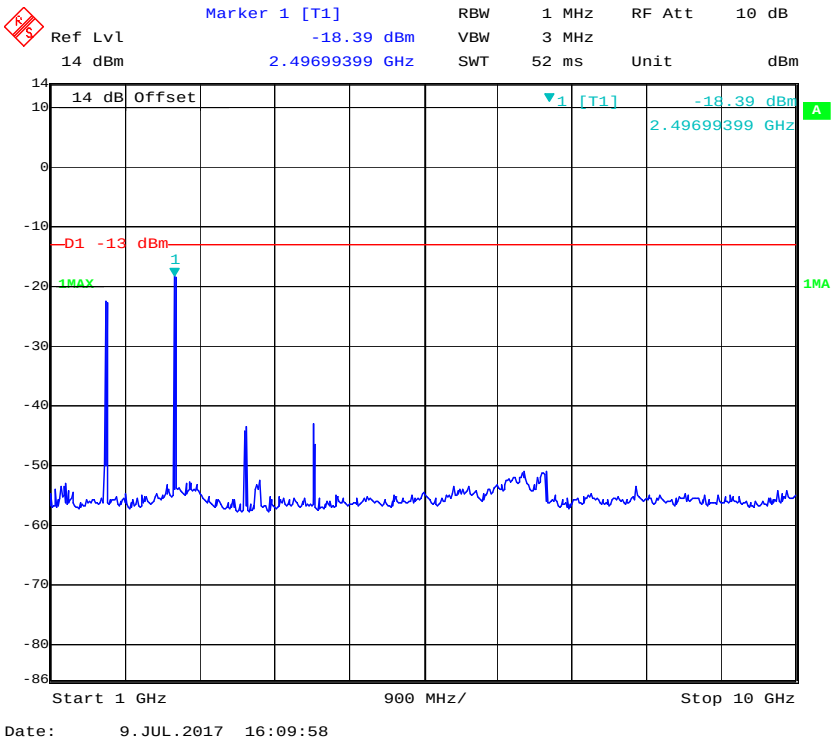
Cellular Band (Part 22H)

30 MHz – 1 GHz (GSM Mode)

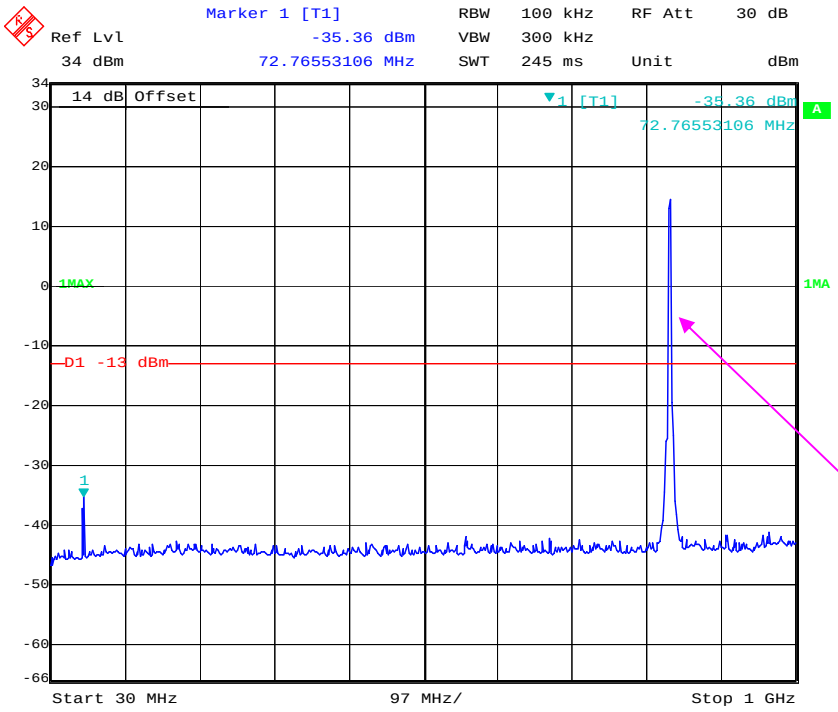


Fundamental test

1 GHz – 10 GHz (GSM Mode)



30 MHz – 1 GHz (WCDMA Mode)

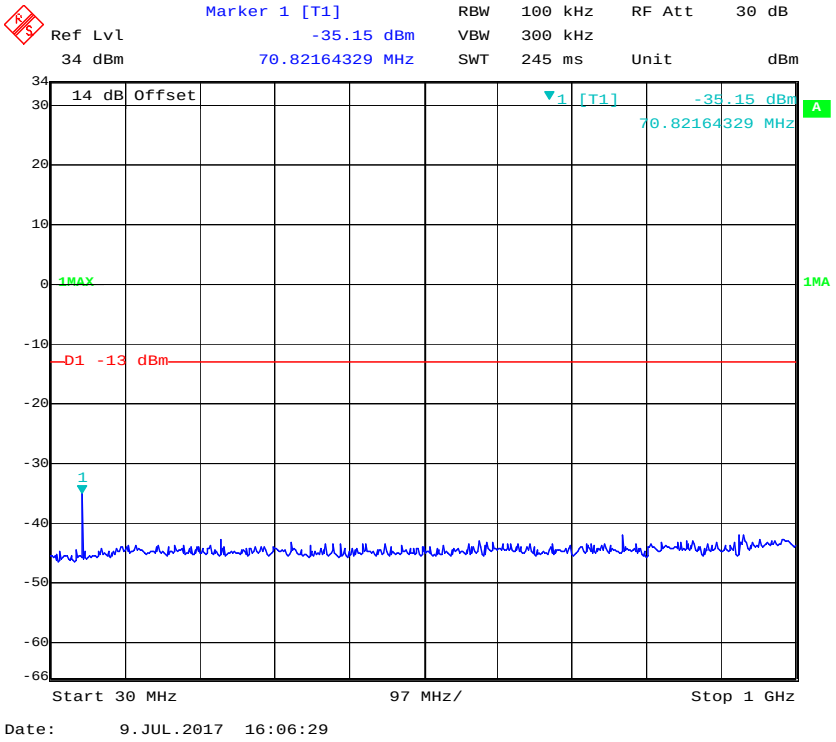


Fundamental test

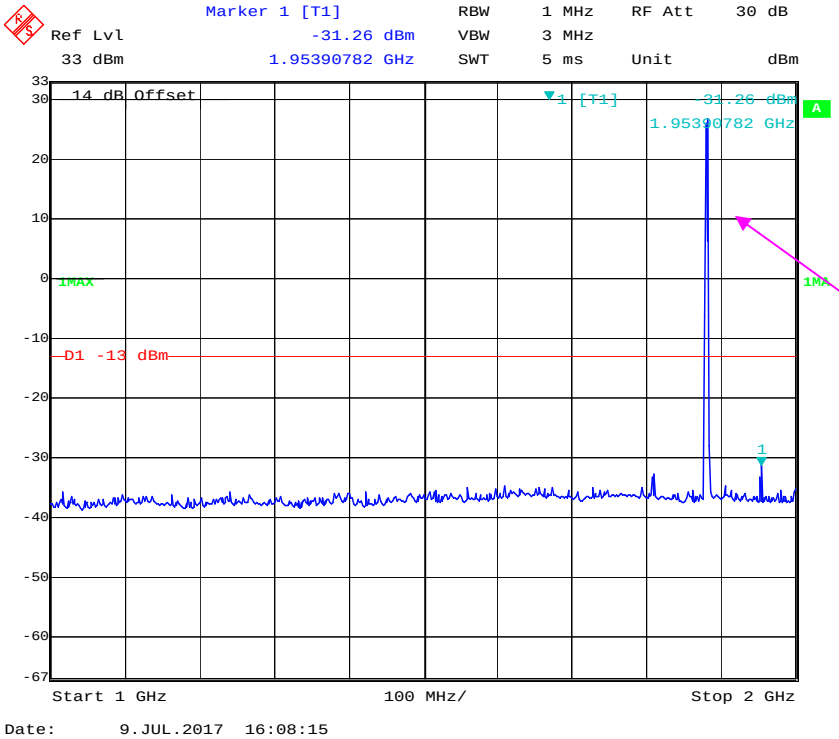
1 GHz – 10 GHz (WCDMA Mode)

PCS Band (Part 24E)

30 MHz – 1 GHz (GSM Mode)

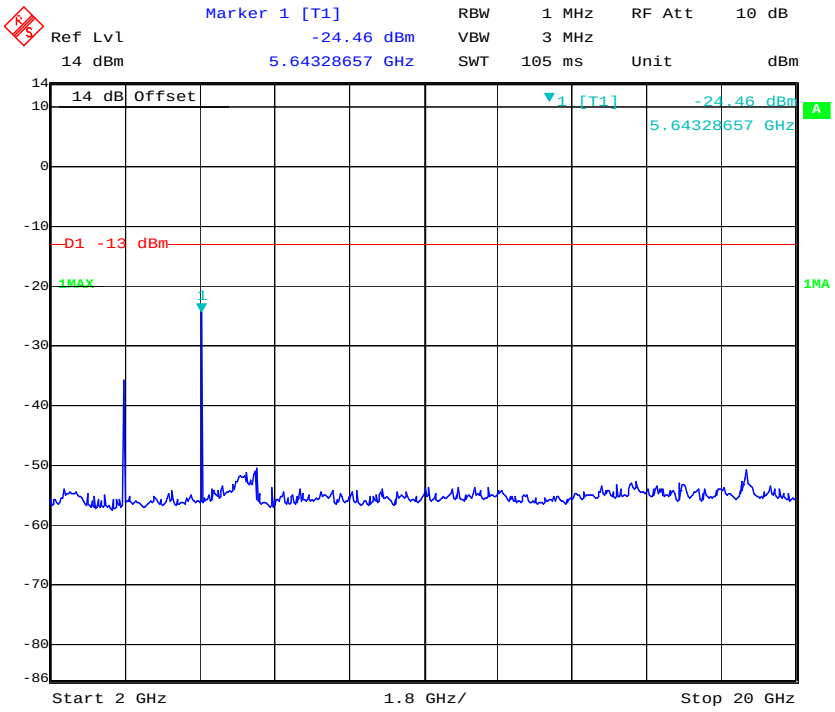


1 GHz – 2 GHz (GSM Mode)



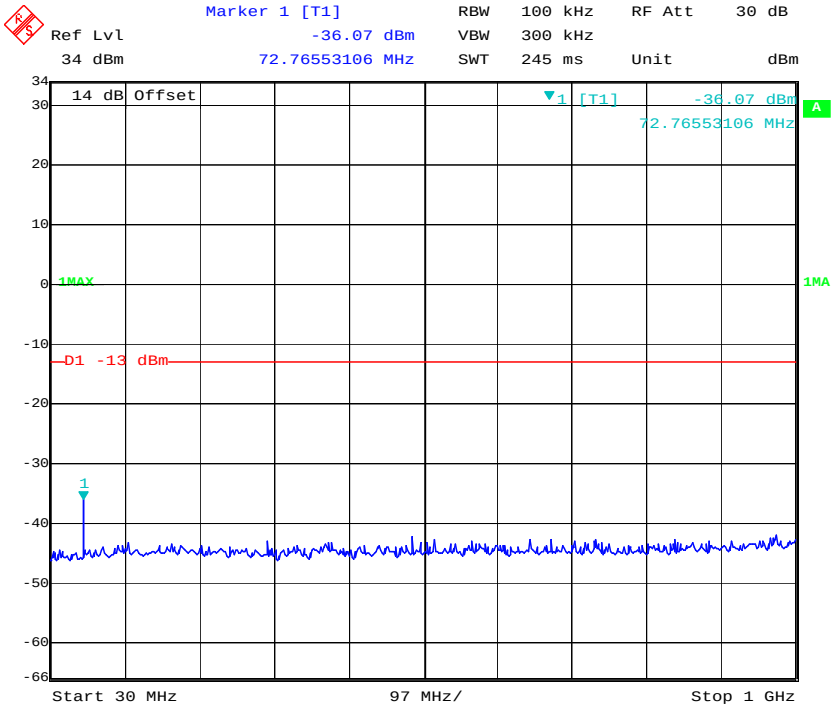
Fundamental test

2 GHz – 20 GHz (GSM Mode)



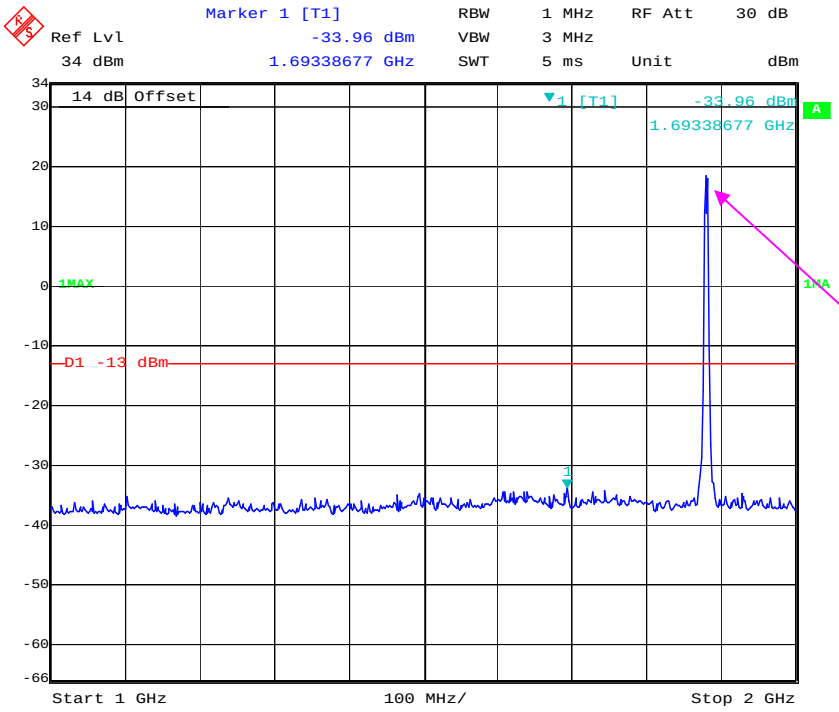
Date: 9.JUL.2017 16:07:38

30 MHz – 1 GHz (WCDMA Mode)



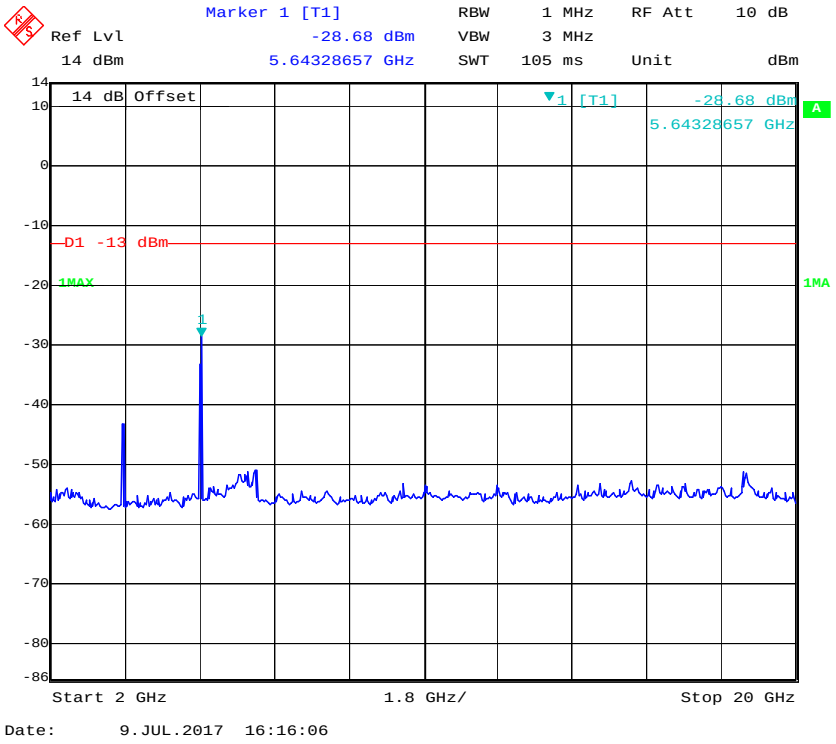
Date: 9.JUL.2017 16:17:15

1 GHz – 2 GHz (WCDMA Mode)



Fundamental test

2 GHz – 20 GHz (WCDMA Mode)



FCC §2.1053, §22.917 & §24.238 - SPURIOUS RADIATED EMISSIONS

Applicable Standard

FCC § 2.1053, §22.917 and § 24.238.

Test Procedure

The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load which was also placed on the turntable.

The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the receiving antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.

The frequency range up to tenth harmonic of the fundamental frequency was investigated.

Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

Spurious emissions in dB = 10 lg (TXpwr in Watts/0.001) – the absolute level

Spurious attenuation limit in dB = 43 + 10 Log_{10} (power out in Watts)

Test Data

Environmental Conditions

Temperature:	25 ℃
Relative Humidity:	46 %
ATM Pressure:	101.0 kPa

The testing was performed by Layne Li on 2017-07-07.

EUT operation mode: Transmitting

Pre-scan with Low, Middle and High channel, the worst case as below:

30 MHz ~ 10 GHz:

Cellular Band (Part 22H)

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)			
GSM Mode, High channel										
352.29	32.85	188	1.3	H	-69.2	0.23	4.65	-64.78	-13	51.78
352.29	36.89	38	2.2	V	-68.3	0.23	4.65	-63.88	-13	50.88
1673.20	47.60	204	2.1	H	-54.2	0.40	8.52	-46.08	-13	33.08
1673.20	51.87	84	2.0	V	-51.9	0.40	8.52	-43.78	-13	30.78
WCDMA Mode, Middle channel										
352.29	32.55	343	1.3	H	-69.5	0.23	4.65	-65.08	-13	52.08
352.29	36.09	223	1.1	V	-69.1	0.23	4.65	-64.68	-13	51.68
1673.20	58.00	87	2.4	H	-43.8	0.40	8.52	-35.68	-13	22.68
1673.20	57.87	34	1.7	V	-45.9	0.40	8.52	-37.78	-13	24.78

30 MHz ~ 20 GHz:

PCS Band (Part 24E)

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dB)			
GSM Mode, Low channel										
352.29	32.45	358	2.4	H	-69.6	0.23	4.65	-65.18	-13	52.18
352.29	36.89	107	2.5	V	-68.3	0.23	4.65	-63.88	-13	50.88
3760.00	36.62	5	2.3	H	-59.4	0.59	9.72	-50.27	-13	37.27
3760.00	38.31	336	2.0	V	-58.8	0.59	9.72	-49.67	-13	36.67
WCDMA Mode, Middle channel										
352.29	32.85	34	2.0	H	-69.2	0.23	4.65	-64.78	-13	51.78
352.29	36.29	160	2.0	V	-68.9	0.23	4.65	-64.48	-13	51.48
3760.00	42.82	79	2.4	H	-53.2	0.59	9.72	-44.07	-13	31.07
3760.00	44.41	101	1.7	V	-52.7	0.59	9.72	-43.57	-13	30.57

Note:
1) Absolute Level = Substituted Level - Cable loss + Antenna Gain
2) Margin = Limit- Absolute Level

FCC §22.917(a) & §24.238(a) - BAND EDGES

Applicable Standard

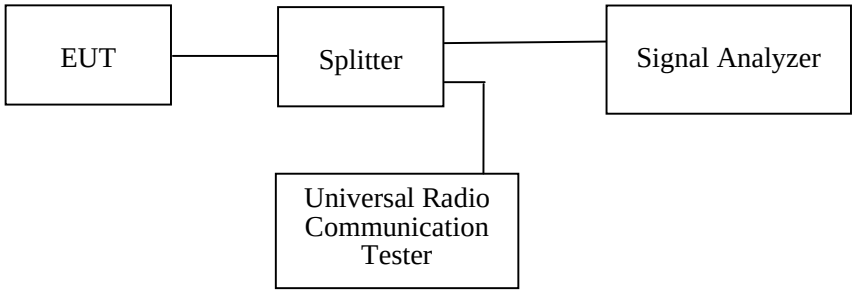
According to § 22.917(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

According to §24.238(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

Test Procedure

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.

The center of the spectrum analyzer was set to block edge frequency



Test Data

Environmental Conditions

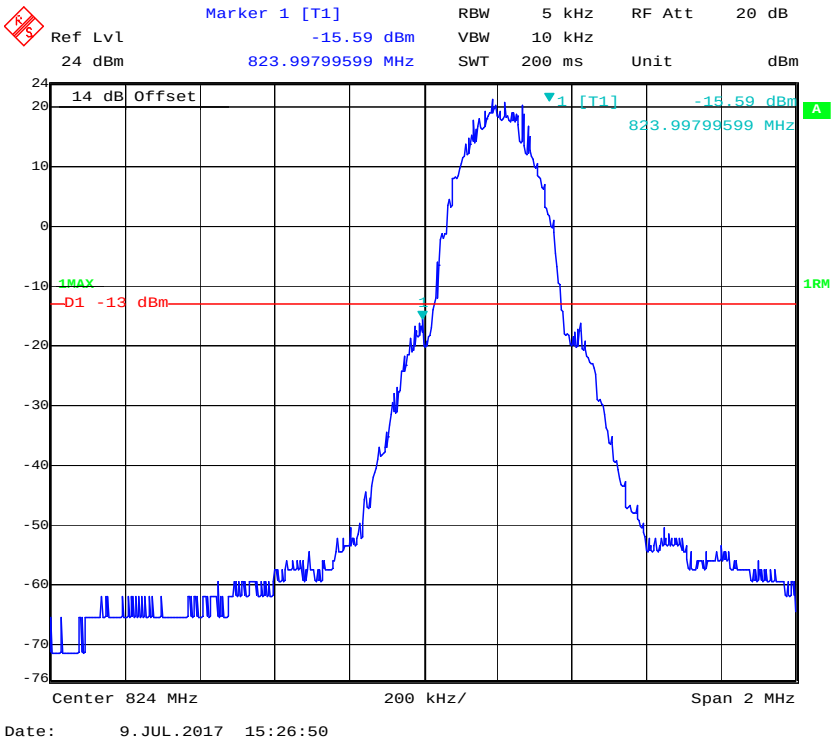
Temperature:	24 ℃
Relative Humidity:	54 %
ATM Pressure:	101.0 kPa

The testing was performed by Ada Yu on 2017-07-09.

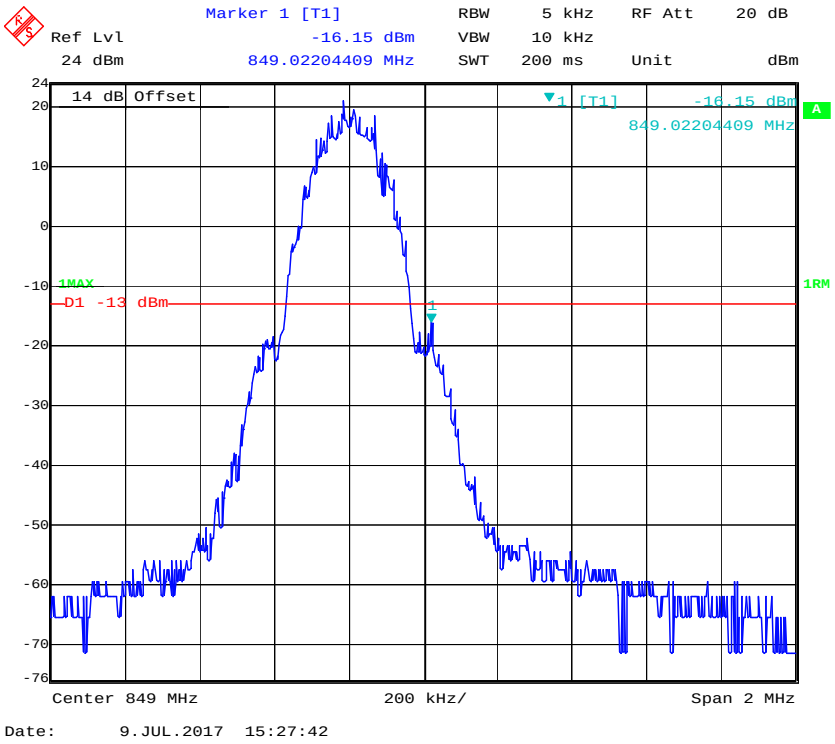
EUT operation mode: Transmitting

Test Result: Compliance. Please refer to the following plots.

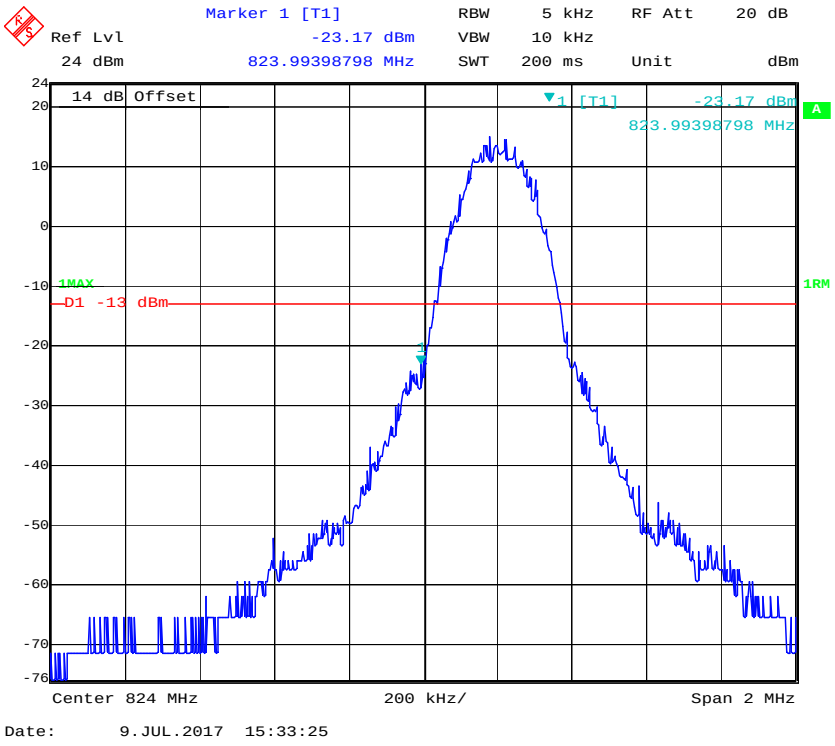
Cellular Band, Left Band Edge for GSM (GMSK) Mode



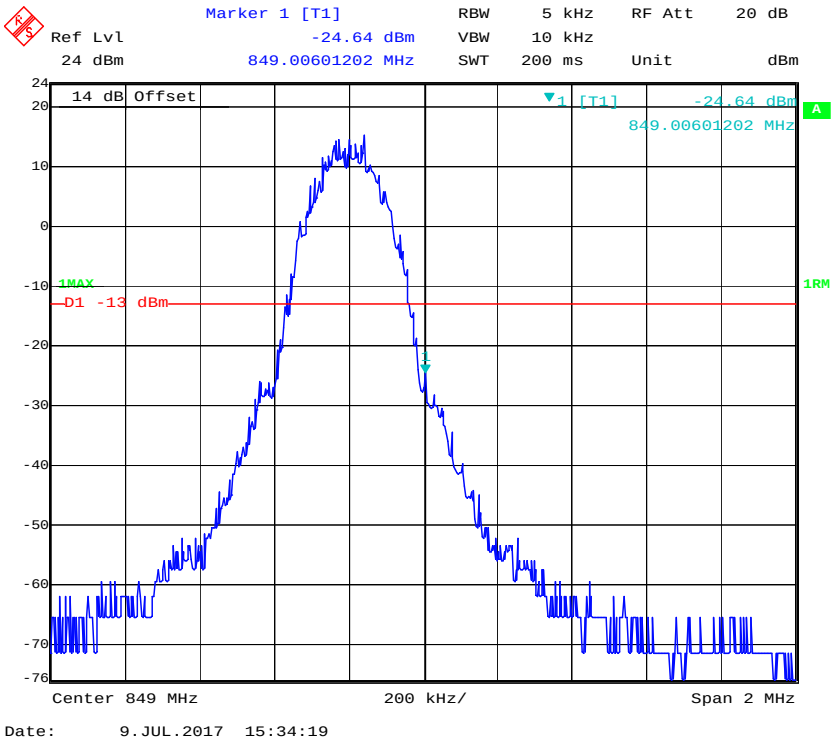
Cellular Band, Right Band Edge for GSM (GMSK) Mode



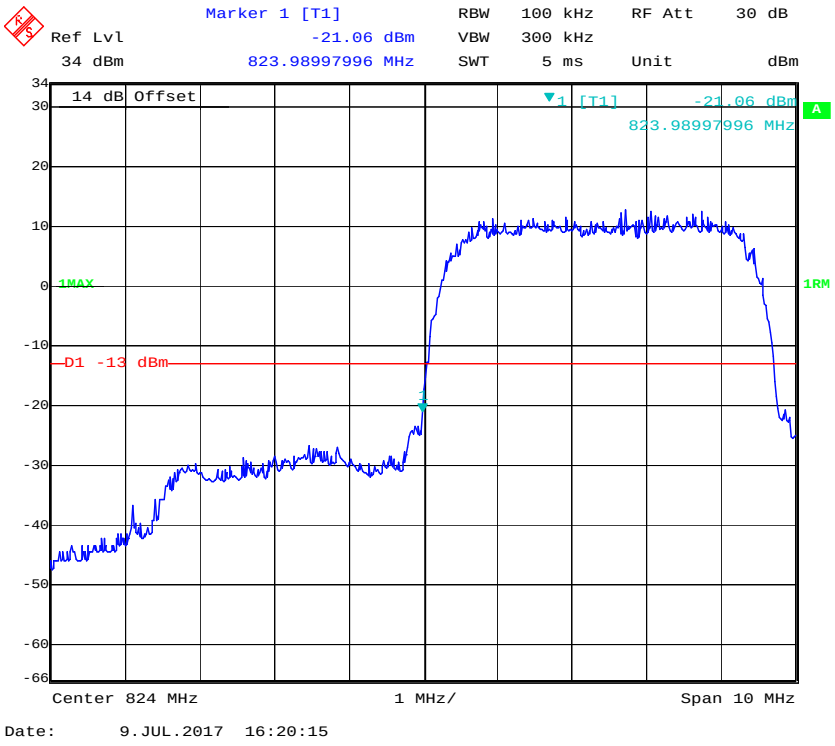
Cellular Band, Left Band Edge for EGPRS Mode



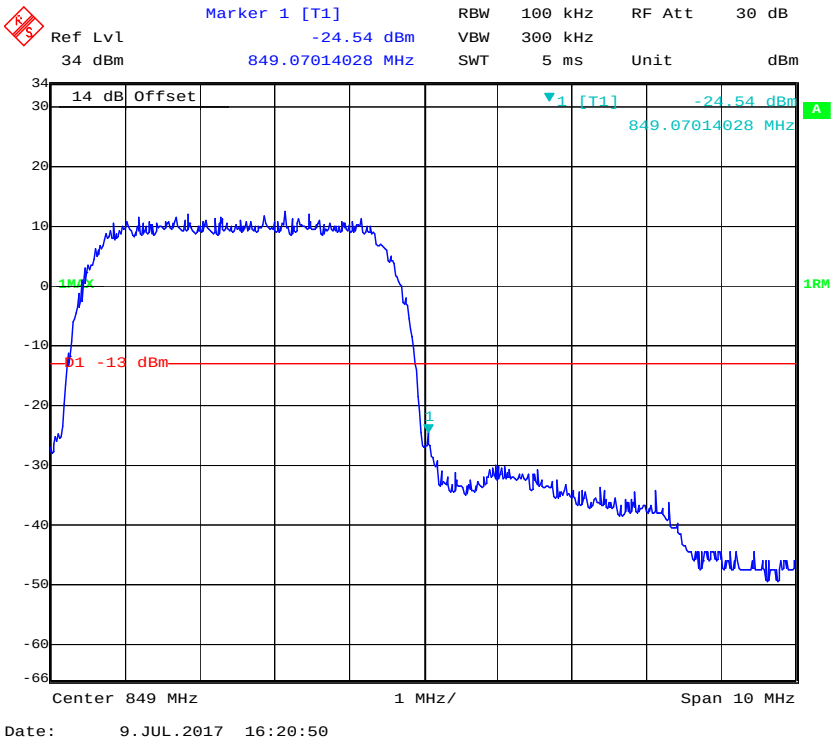
Cellular Band, Right Band Edge for EGPRS Mode



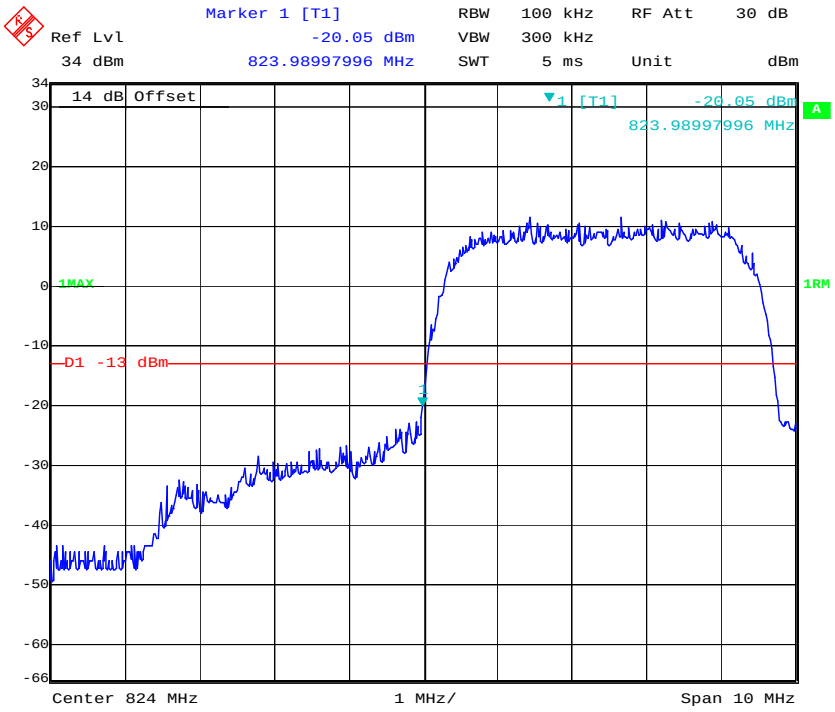
Cellular Band, Left Band Edge for WCDMA (BPSK) Mode



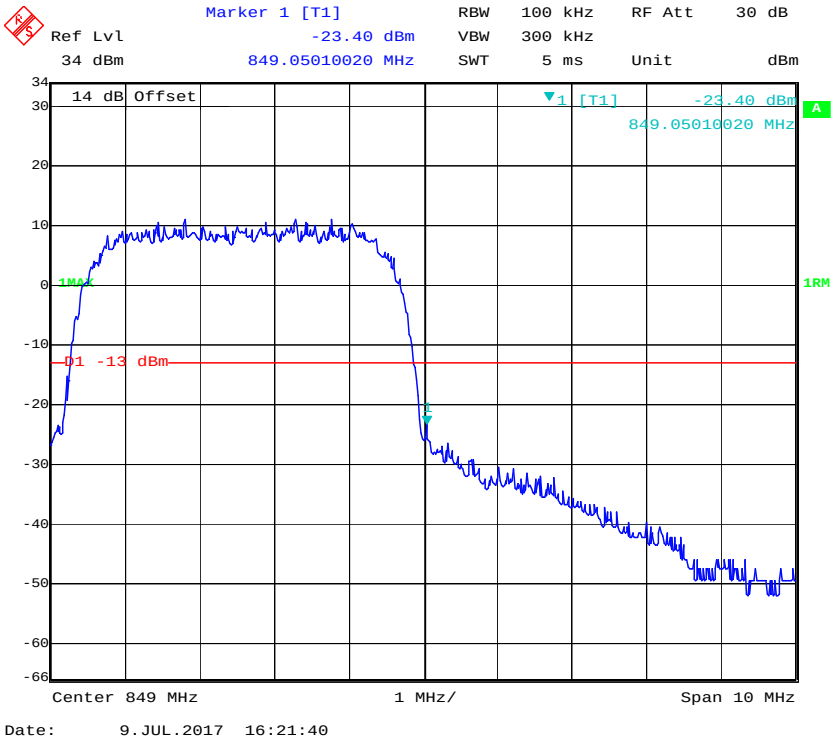
Cellular Band, Right Band Edge for WCDMA (BPSK) Mode



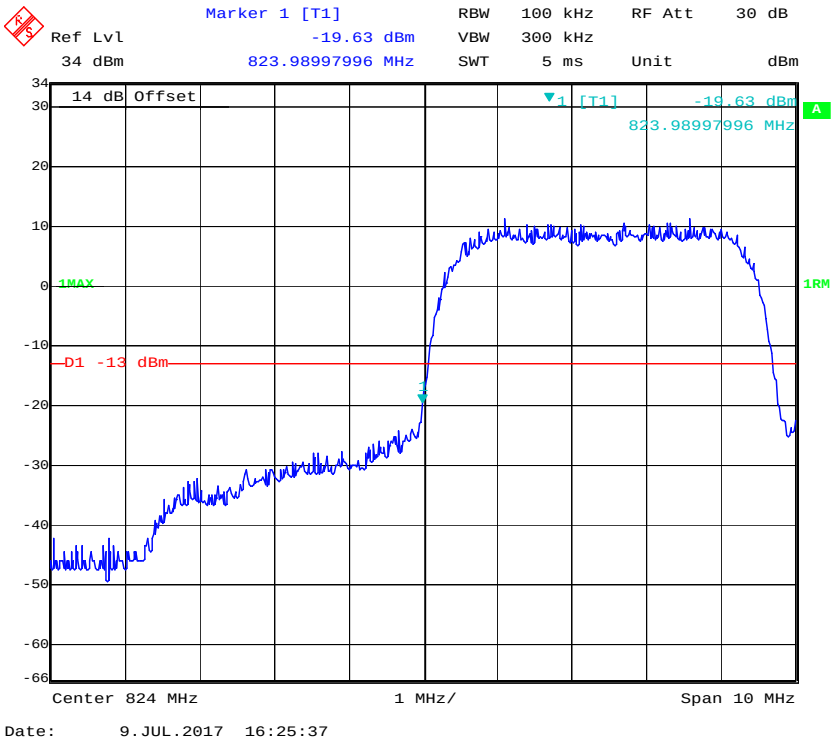
Cellular Band, Left Band Edge for HSDPA (16QAM) Mode



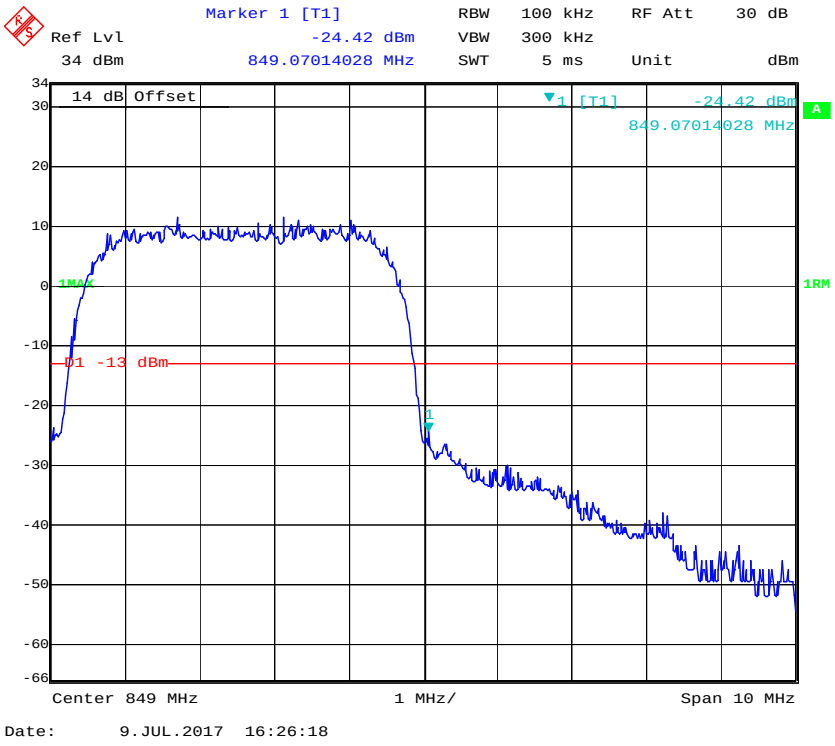
Cellular Band, Right Band Edge for HSDPA (16QAM) Mode



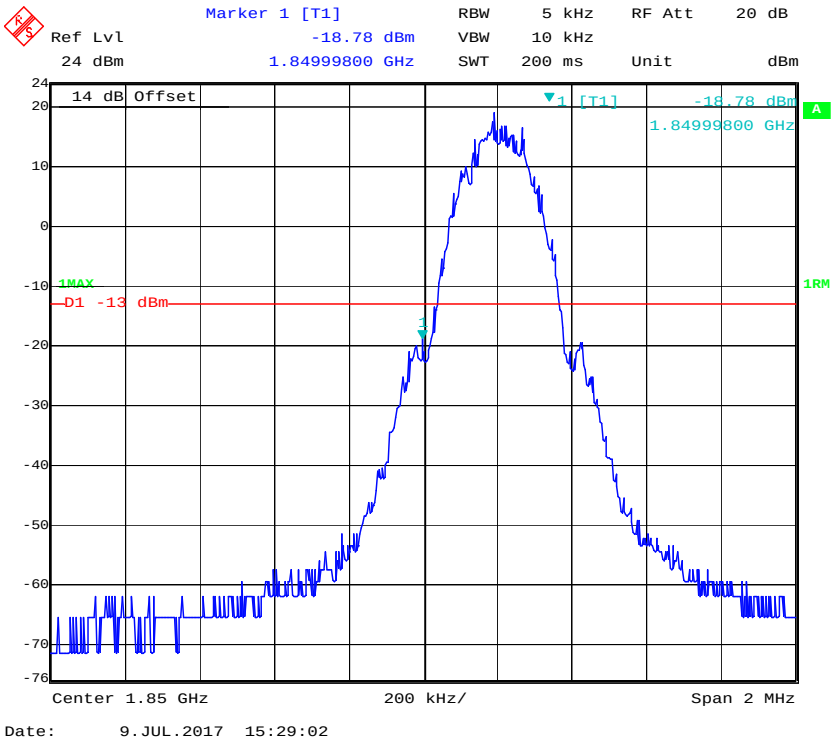
Cellular Band, Left Band Edge for HSUPA (BPSK) Mode



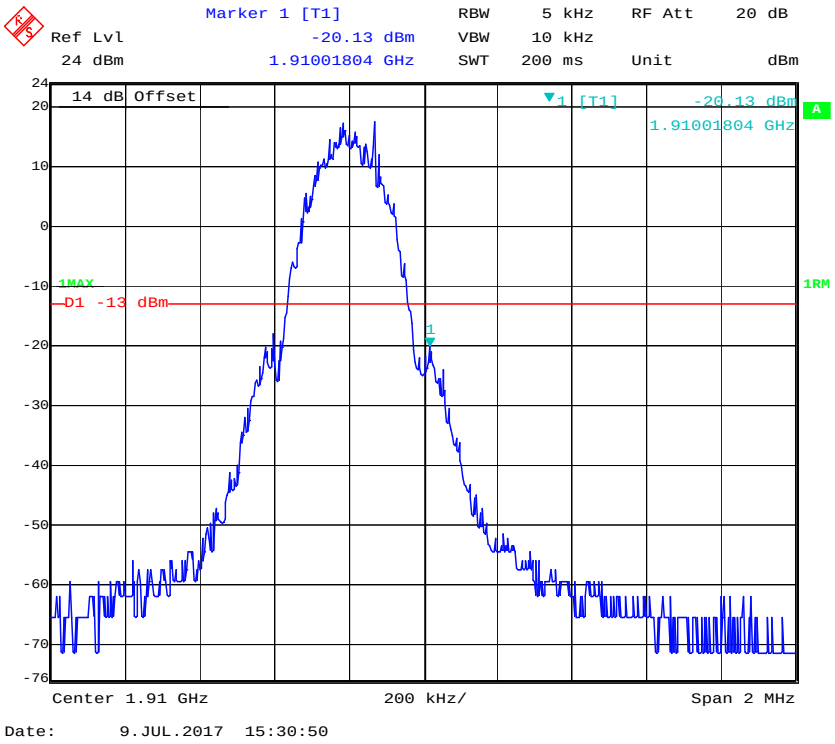
Cellular Band, Right Band Edge for HSUPA (BPSK) Mode



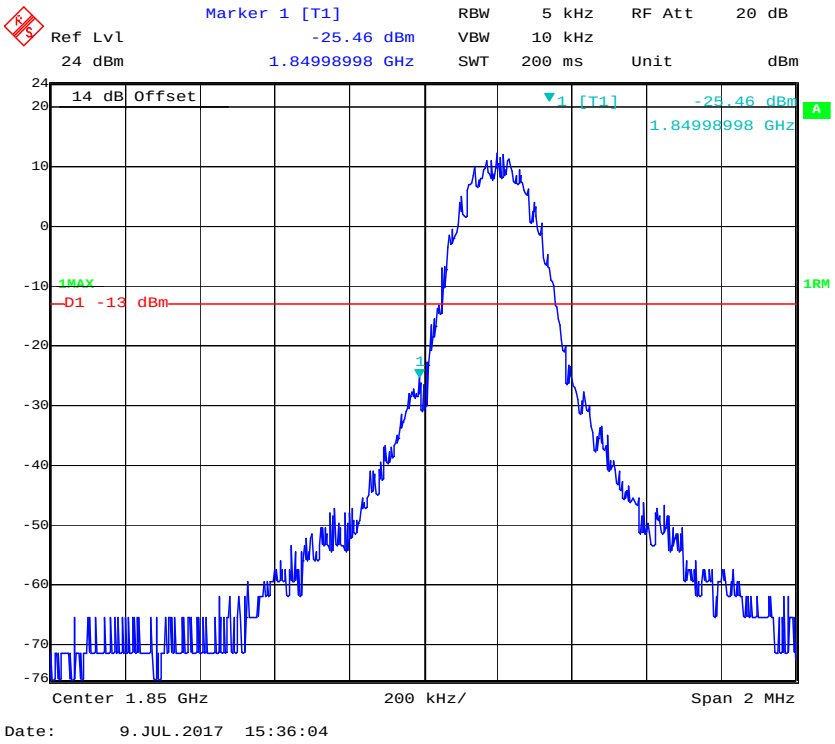
PCS Band, Left Band Edge for GSM (GMSK) Mode



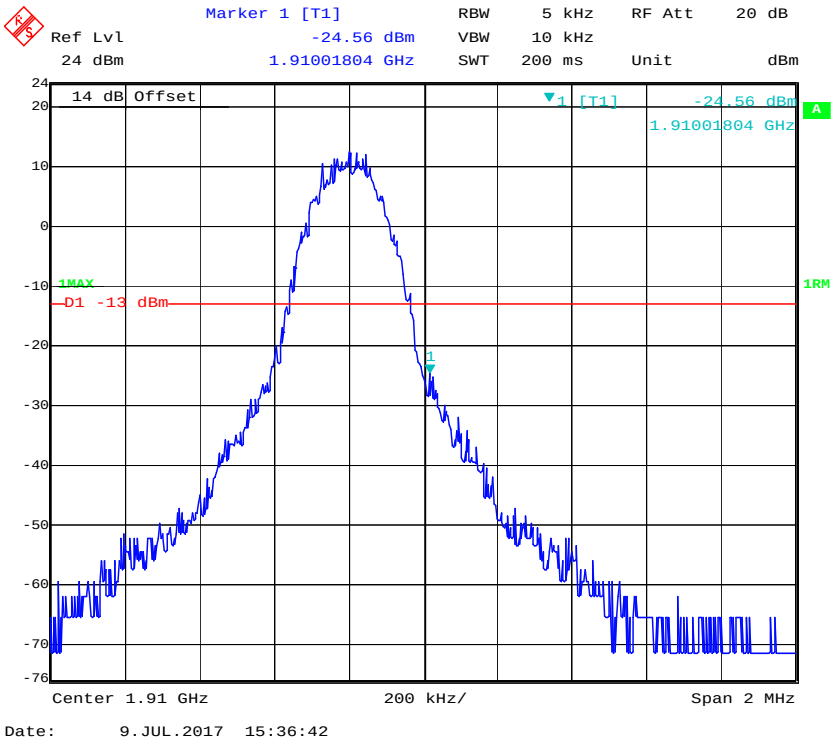
PCS Band, Right Band Edge for GSM (GMSK) Mode



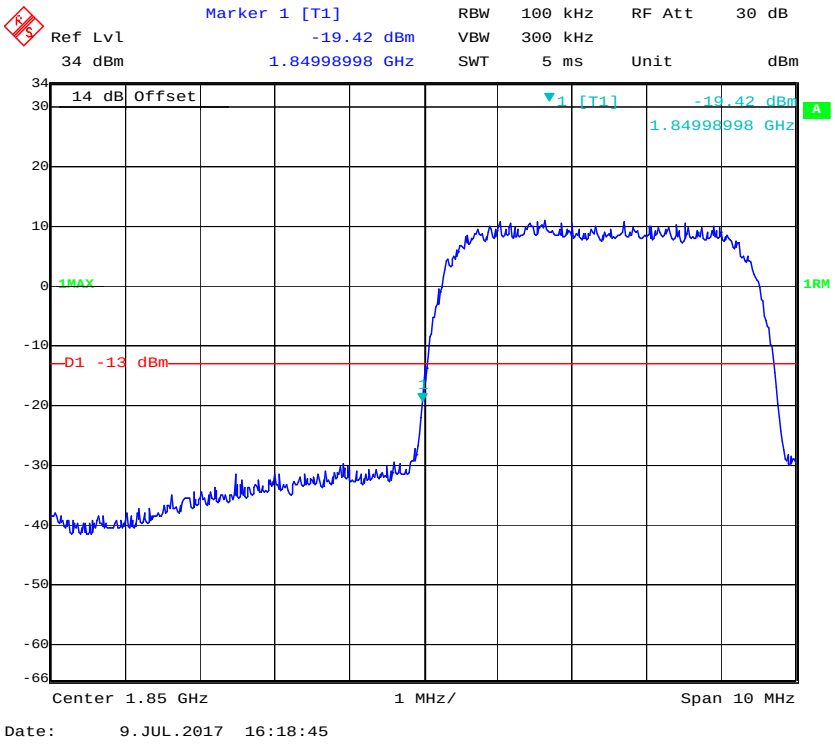
PCS Band, Left Band Edge for EGPRS Mode



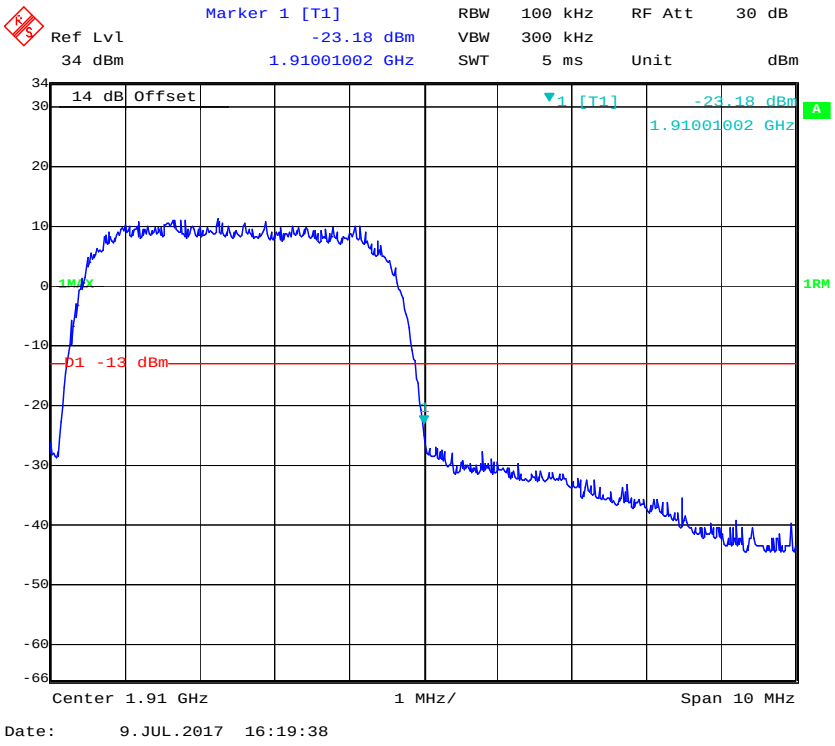
PCS Band, Right Band Edge for EGPRS Mode



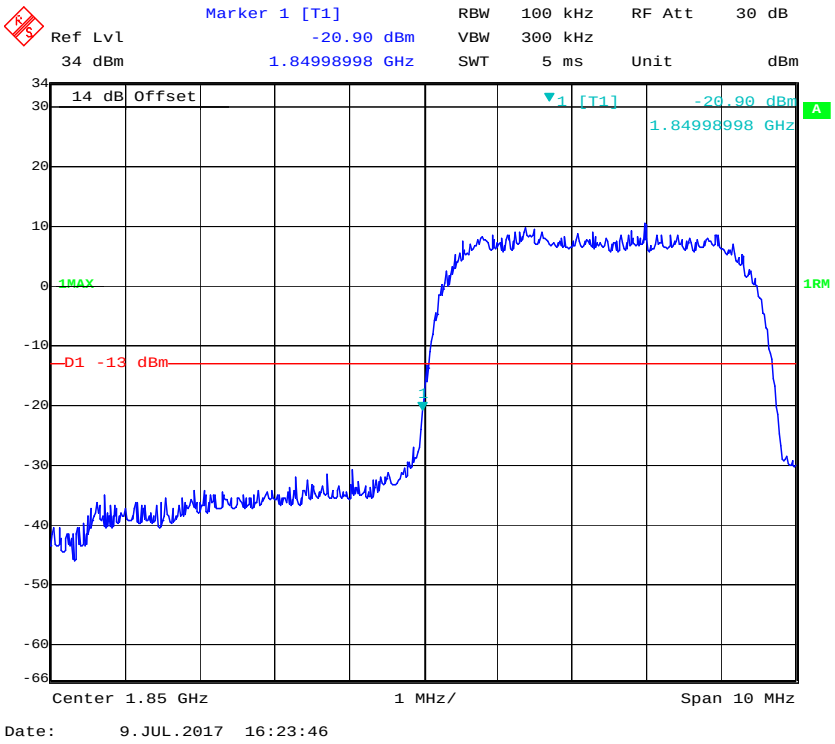
PCS Band, Left Band Edge for WCDMA (BPSK) Mode



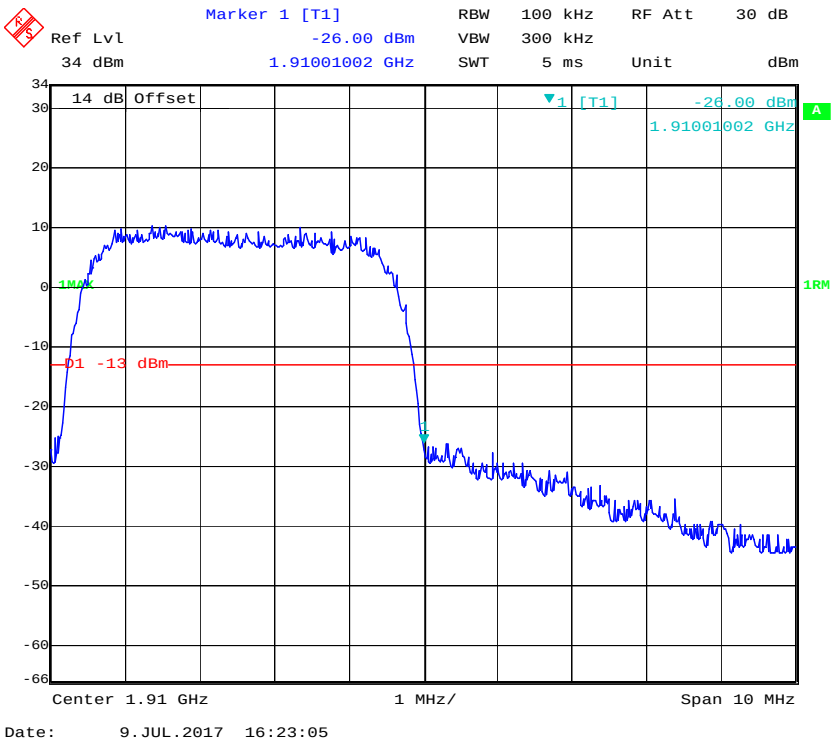
PCS Band, Right Band Edge for WCDMA (BPSK) Mode



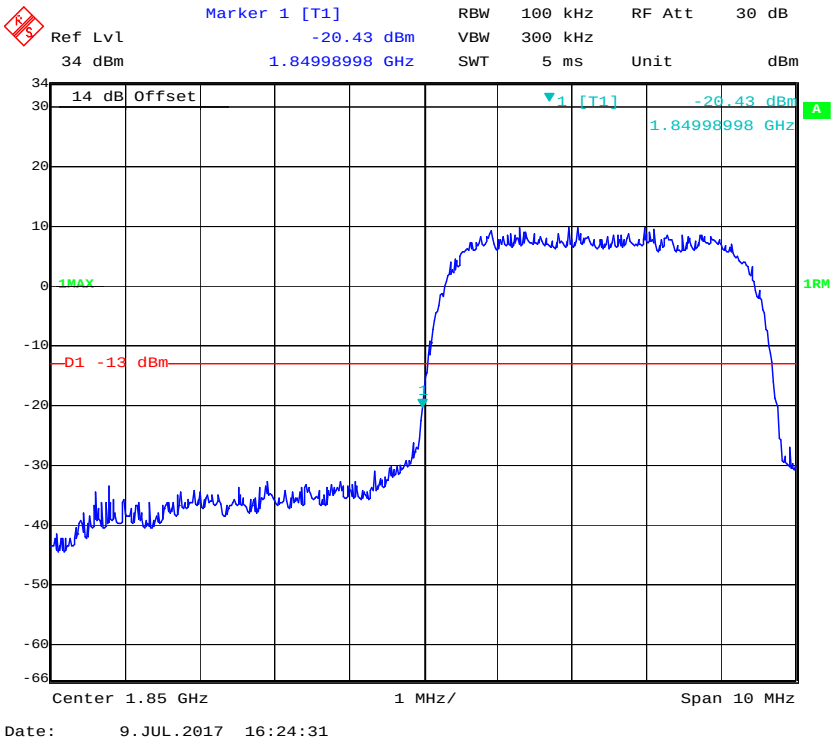
PCS Band, Left Band Edge for HSDPA (16QAM) Mode



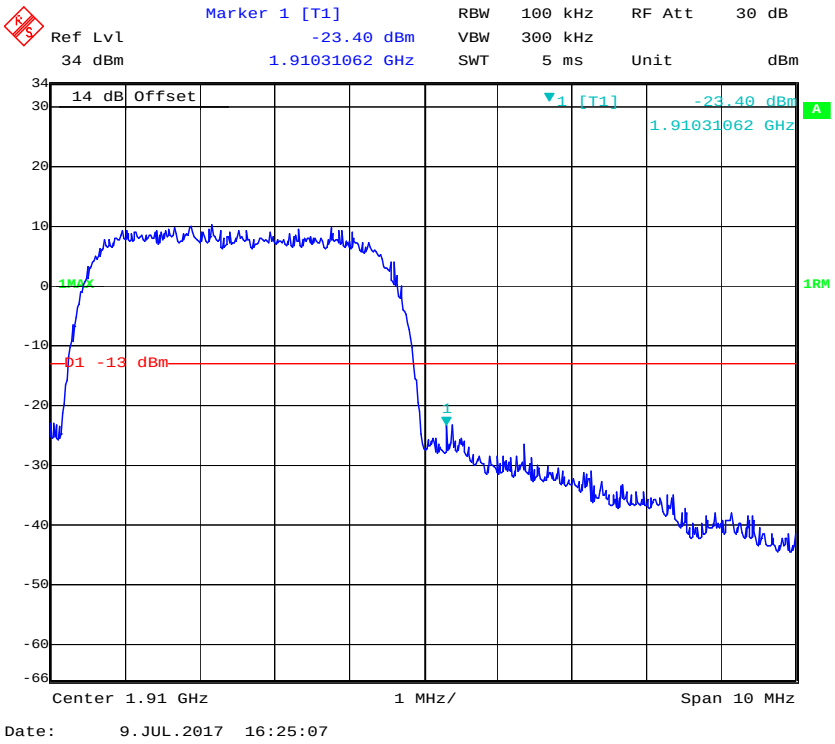
PCS Band, Right Band Edge for HSDPA (16QAM) Mode



PCS Band, Left Band Edge for HSUPA (BPSK) Mode



PCS Band, Right Band Edge for HSUPA (BPSK) Mode



FCC §2.1055, §22.355 & §24.235 - FREQUENCY STABILITY

Applicable Standard

FCC § 2.1055, §22.355, §24.235

According to §22.355, the carrier frequency of each transmitter in the Public Mobile Services must be maintained within the tolerances given in Table below:

Frequency Tolerance for Transmitters in the Public Mobile Services

Frequency Range (MHz)	Base, fixed (ppm)	Mobile ≤ 3 watts (ppm)	Mobile > 3 watts (ppm)
25 to 50	20.0	20.0	50.0
50 to 450	5.0	5.0	50.0
450 to 512	2.5	5.0	5.0
821 to 896	1.5	2.5	2.5
928 to 929.	5.0	N/A	N/A
929 to 960.	1.5	N/A	N/A
2110 to 2220	10.0	N/A	N/A

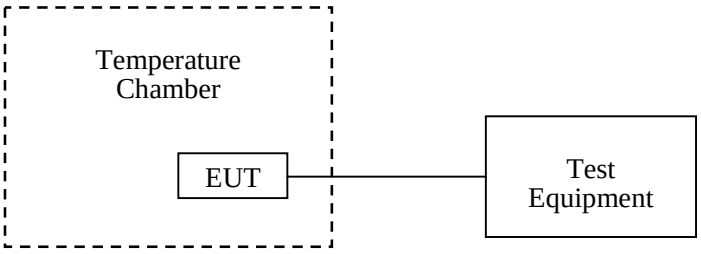
According to §24.235, the frequency stability shall be sufficient to ensure that the fundamental emissions stays within the authorized frequency block.

Test Procedure

Frequency Stability vs. Temperature: The equipment under test was connected to an external DC power supply and the RF output was connected to communication test set via feed-through attenuators. The EUT was placed inside the temperature chamber. The DC leads and RF output cable exited the chamber through an opening made for the purpose.

After the temperature stabilized for approximately 20 minutes, the frequency output was recorded from the communication test set.

Frequency Stability vs. Voltage: For hand carried, battery powered equipment; reduce primary supply voltage to the battery operating end point which shall be specified by the manufacturer.



Test Data

Environmental Conditions

Temperature:	25 ℃
Relative Humidity:	46 %
ATM Pressure:	101.0 kPa

The testing was performed by Ada Yu on 2017-07-07.

EUT operation mode: Transmitting

Test Result: Compliance. Please refer to the following tables.

Cellular Band (Part 22H)

GSM Mode

Middle Channel, f_o =836.6MHz				
Temperature (℃)	**Power Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Limit (ppm)**
-30	3.8	-3	-0.0036	2.5
-20		-4	-0.0048	2.5
-10		-4	-0.0048	2.5
0		-3	-0.0036	2.5
10		-8	-0.0096	2.5
20		-2	-0.0024	2.5
30		-4	-0.0048	2.5
40		-4	-0.0048	2.5
50		5	0.0060	2.5
25	V min.= 3.6	-3	-0.0036	2.5
25	V max.= 4.35	-1	-0.0012	2.5

EGPRS Mode

Middle Channel, f_o =836.6MHz				
Temperature (℃)	**Power Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Limit (ppm)**
-30	3.8	7	0.0084	2.5
-20		2	0.0024	2.5
-10		-2	-0.0024	2.5
0		4	0.0048	2.5
10		-3	-0.0036	2.5
20		2	0.0024	2.5
30		-5	-0.0060	2.5
40		-3	-0.0036	2.5
50		3	0.0036	2.5
25	V min.= 3.6	-4	-0.0048	2.5
25	V max.= 4.35	-1	-0.0012	2.5

WCDMA Mode

Middle Channel, f_o =836.6MHz				
Temperature (℃)	**Power Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Limit (ppm)**
-30	3.8	26	0.0311	2.5
-20		26	0.0311	2.5
-10		25	0.0299	2.5
0		25	0.0299	2.5
10		23	0.0275	2.5
20		0	0.0000	2.5
30		22	0.0263	2.5
40		24	0.0287	2.5
50		23	0.0275	2.5
25	V min.= 3.6	24	0.0287	2.5
25	V max.= 4.35	26	0.0311	2.5

PCS Band (Part 24E)

GSM Mode

Middle Channel, f_o =1880.0 MHz				
Temperature (℃)	**Power Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	3.8	14	0.0074	pass
-20		9	0.0048	pass
-10		16	0.0085	pass
0		11	0.0059	pass
10		8	0.0043	pass
20		8	0.0043	pass
30		7	0.0037	pass
40		8	0.0043	pass
50		7	0.0037	pass
25	V min.= 3.6	5	0.0027	pass
25	V max.= 4.35	5	0.0027	pass

EGPRS Mode

Middle Channel, f_o =1880.0 MHz				
Temperature (℃)	**Power Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	3.8	-15	-0.0080	pass
-20		-6	-0.0032	pass
-10		-9	-0.0048	pass
0		-11	-0.0059	pass
10		-9	-0.0048	pass
20		-5	-0.0027	pass
30		-6	-0.0032	pass
40		-8	-0.0043	pass
50		-5	-0.0027	pass
25	V min.= 3.6	-4	-0.0021	pass
25	V max.= 4.35	-7	-0.0037	pass

WCDMA Mode

Middle Channel, f_o =1880.0 MHz				
Temperature (℃)	**Power Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	3.8	29	0.0154	Pass
-20		29	0.0154	Pass
-10		24	0.0128	Pass
0		24	0.0128	Pass
10		25	0.0133	Pass
20		5	0.0027	Pass
30		23	0.0122	Pass
40		23	0.0122	Pass
50		26	0.0138	Pass
25	V min.= 3.6	24	0.0128	Pass
25	V max.= 4.35	25	0.0133	pass

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