

TEST REPORT

of

FCC Part 22 Subpart H, Part 24 Subpart E

FCC ID: 2AK63RMCU-COMPACT

Equipment Under Test : RMCU
Model Name : RMCU-COMPACT
Applicant : HYUNDAI BS&C Co., Ltd.
Manufacturer : HYUNDAI BS&C Co., Ltd.
Date of Receipt : 2017.02.06
Date of Test(s) : 2017.02.24 ~ 2017.04.26
Date of Issue : 2017.06.14

In the configuration tested, the EUT complied with the standards specified above.

Tested By:



Jinhyoung Cho

Date:

2017.06.14

Technical
Manager:



Hyunchoe You

Date:

2017.06.14

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RTT5041-20(2015.10.01)(3)

Tel. +82 31 428 5700 / Fax. +82 31 427 2370

A4(210 mm x 297 mm)

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1. General information

1.1. Testing laboratory

SGS Korea Co., Ltd. (Gunpo Laboratory)

- Wireless Div. 2FL, 10-2, LS-ro 182beon-gil, Gunpo-si, Gyeonggi-do, Korea, 15807

All SGS services are rendered in accordance with the applicable SGS conditions of service available on request and accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx>.

Telephone : +82 31 688 0901

FAX : +82 31 688 0921

1.2. Details of applicant

Applicant : HYUNDAI BS&C Co., Ltd.

Address : Adora Tower 2F, 272, Toegye-ro, Jung-gu, Seoul

Contact Person : Lee, Han

Phone No. : +82 70 8277 7285

1.3. Description of EUT

Kind of Product	RMCU
Model Name	RMCU-COMPACT
Approved Module	LISA-U200 (FCC ID : XPYLISAU200)
Power Supply	DC 12 V, DC 24 V
Rated Power	GSM 850 : 33 dBm GSM 1 900 : 30 dBm WCDMA 2, 5 : 23 dBm
Frequency Range	GSM 850 : 824 MHz ~ 849 MHz GSM 1 900 : 1 850 MHz ~ 1 910 MHz WCDMA 2 : 1 850 MHz ~ 1 910 MHz WCDMA 5 : 824 MHz ~ 849 MHz
Emission Designator	GSM 850 : 300KGXW (GPRS) / 300KG7W (EDGE) GSM 1900 : 300KGXW (GPRS) / 300KG7W (EDGE) WCDMA 2 : 4M56F9W WCDMA 5 : 4M56F9W

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1.4. Test equipment list

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Interval	Cal. Due.
Signal Generator	Agilent	E8257D	MY51501169	Jul. 07, 2016	Annual	Jul. 07, 2017
Spectrum Analyzer	R&S	FSV30	100955	Mar. 20, 2017	Annual	Mar. 20, 2018
Spectrum Analyzer	Agilent	N9030A	MY53120526	Jun. 24, 2016	Annual	Jun. 24, 2017
Mobile Test Unit	R&S	CMW500	144035	Feb. 22, 2017	Annual	Feb. 22, 2018
High Pass Filter	Wainwright Instrument GmbH	WHKX10-900-1000-18000-40SS	7	Mar. 30, 2017	Annual	Mar. 30, 2018
High Pass Filter	Wainwright Instrument GmbH	WHK3.0/18G-10SS	344	Jun. 03, 2016	Annual	Jun. 03, 2017
High Pass Filter	Wainwright Instrument GmbH	WHKX2.2/12.75G-10SS	8	Mar. 30, 2017	Annual	Mar. 30, 2018
High Pass Filter	Wainwright Instrument GmbH	WHKX1.5/15G-6SS	4	Jun. 18, 2016	Annual	Jun. 18, 2017
DC Power Supply	Agilent	U8002A	MY50020026	Dec. 24, 2016	Annual	Dec. 14, 2017
Preamplifier	H.P.	8447F	2944A03909	Aug. 11, 2016	Annual	Aug. 11, 2017
Preamplifier	R&S	SCU 18	10117	Apr. 08, 2017	Annual	Apr. 08, 2018
Preamplifier	MITEQ Inc.	JS44-18004000-35-8P	1546891	May 15, 2017	Annual	May 15, 2018
Test Receiver	R&S	ESU26	100109	Feb. 17, 2017	Annual	Feb. 17, 2018
Bilog Antenna	SCHWARZBECK MESSELEKTRONIK	VULB9163	396	Jun. 18, 2015	Biennial	Jun. 18, 2017
Horn Antenna	R&S	HF907	100208	Oct. 21, 2016	Biennial	Oct. 21, 2018
Horn Antenna	SCHWARZBECK MESSELEKTRONIK	BBHA9170	BBHA9170223	Aug. 25, 2016	Biennial	Aug. 25, 2018
Antenna Master	INNCO	MM4000	N/A	N.C.R.	N/A	N.C.R.
Turn Table	INNCO	DS 1200S	N/A	N.C.R.	N/A	N.C.R.
Anechoic Chamber	SY Corporation	L x W x H (9.6 m x 6.4 m x 6.4 m)	N/A	N.C.R.	N/A	N.C.R.

Remark;

The equipment calibrated during the test period was used after finished the calibration.

► Support equipment

Description	Manufacturer	Model	Serial Number
N/A	-	-	-

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1.5. Summary of test results

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 2, 22 and 24		
Section in FCC part	Test Item	Result
§2.1046 §22.913(a)(2) §24.232(c)	RF Radiated Output Power	Complied
§2.1053 §22.917(a) §24.238(a)	Spurious Radiated Emission	Complied

1.6. Test report revision

Revision	Report number	Date of Issue	Description
0	F690501/RF-RTL011346	2017.05.25	Initial
1	F690501/RF-RTL011346-1	2017.06.14	Revised test report

1.7. Sample calculation for offset

Where relevant, the following sample calculation is provided:

1.7.1. Radiation test

E.R.P. & E.I.R.P. = [S.G level + Amp.] (dB m) - Cable loss (dB) + Ant. gain (dB d/dB i)

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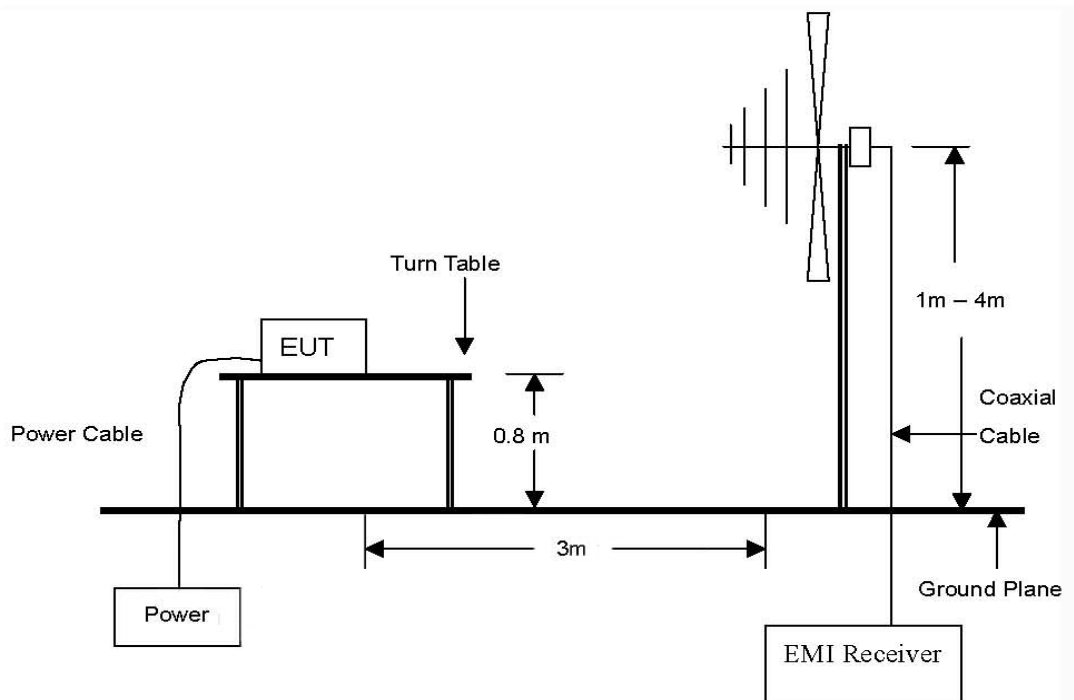
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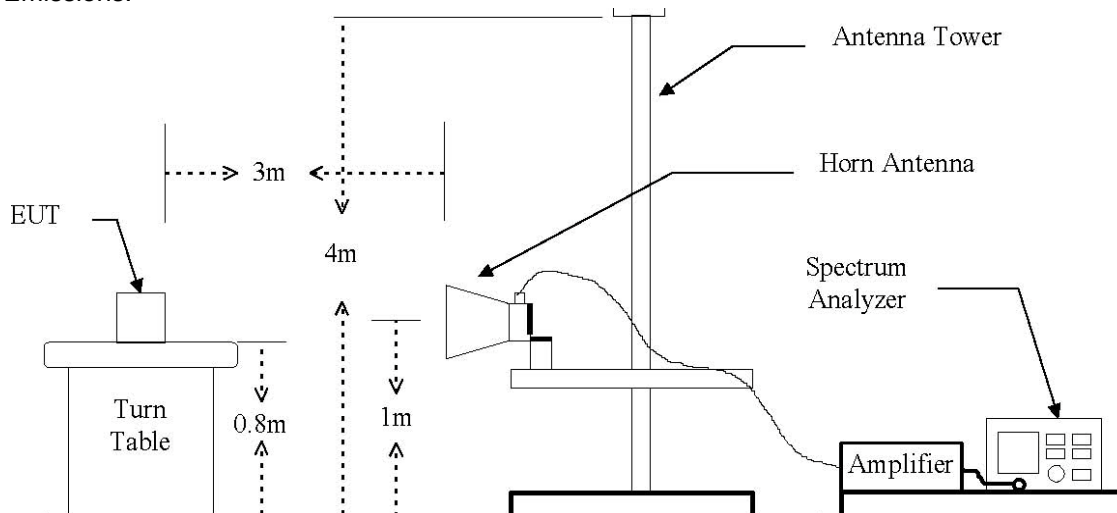
2. RF radiated output power & spurious radiated emission

2.1. Test setup

The diagram below shows the test setup that is utilized to make the measurements for emission from 30 MHz to 1 GHz Emissions.



The diagram below shows the test setup that is utilized to make the measurements for emission from 1 GHz to 20 GHz Emissions.



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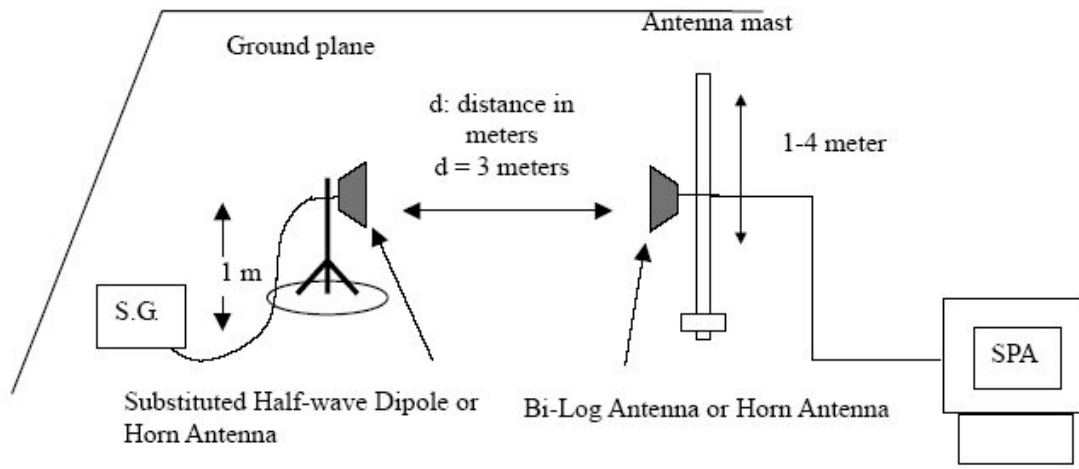
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The diagram below shows the test setup for substituted method.



2.2. Limit

2.2.1. Limit of radiated output power

FCC

- §22.913(a)(2), the ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

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

2.2.2. Limit of spurious radiated emission

FCC

- §22.917(a), the power of any emission 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.

- §24.238(a), the power of any emission 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.

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2.3. Test procedure: Based on ANSI/TIA 603-D: 2010

1. On a test site, the EUT shall be placed at 80cm height on a turn table, and in the position close to normal use as declared by the applicant.
2. The test antenna shall be oriented initially for vertical polarization located 3 m from EUT to correspond to the fundamental frequency of the transmitter.
3. The output of the test antenna shall be connected to the measuring receiver and the peak detector is used for the measurement.
4. The maximized power level is recorded using the spectrum analyzer "Channel Power" function with the integration band set to the emissions occupied bandwidth, RBW = 1-5 % of the OBW (not to exceed 1 MHz), VBW $\geq 3 \times$ RBW, Detector = RMS, sweep time = auto, trace average at least 100 traces in power averaging(i.e., RMS) mode, per the guidelines of KDB 971168 v02r02.
5. Radiated spurious emissions measurement method was set as follows:
RBW = 100 kHz for emissions below 1 GHz and 1 MHz for emissions above 1 GHz, VBW $\geq 3 \times$ RBW, Detector = Peak, trace mode = max hold, per the guidelines of KDB 971168 v02r02.
6. The transmitter shall be switched on, the measuring receiver shall be tuned to the frequency of the transmitter under test.
7. The test antenna shall be raised and lowered through the specified range of height until the maximum signal level is detected by the measuring receiver.
8. The transmitter shall be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
9. The test antenna shall be raised and lowered again through the specified range of height until the maximum signal level is detected by the measuring receiver.
10. The maximum signal level detected by the measuring receiver shall be noted.
11. The EUT was replaced by half-wave dipole (1 GHz below) or horn antenna (1 GHz above) connected to a signal generator.
12. In necessary, the input attenuator setting on the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.
13. The test antenna shall be raised and lowered through the specified range of height to ensure that the maximum signal is received.
14. The input signal to the substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, which is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuator setting of the measuring receiver.
15. The input level to the substitution antenna shall be recorded as power level in dBm, corrected for any change of input attenuator setting of the measuring receiver.
16. The measurement shall be repeated with the test antenna and the substitution antenna orientated for horizontal polarization.

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2.4. Test result for RF radiated output power

Ambient temperature : (23 ± 1) °C
Relative humidity : 47 % R.H.

DC 12v

GSM 850

Frequency (MHz)	Ant. Pol. (H/V)	S.G level + Amp. (dB m)	Cable loss (dB)	Ant. gain (dB d)	E.R.P.	
					(dB m)	(mW)
824.2	V	38.00	3.24	-4.85	29.91	979.49
824.2	H	36.06	3.24	-4.85	27.97	626.61
836.6	V	38.28	3.45	-5.14	29.69	931.11
836.6	H	34.45	3.45	-5.14	25.86	385.48
848.8	V	39.24	3.52	-4.05	31.67	1 468.93
848.8	H	33.32	3.52	-4.05	25.75	375.84

GSM 850 EDGE

Frequency (MHz)	Ant. Pol. (H/V)	S.G level + Amp. (dB m)	Cable loss (dB)	Ant. gain (dB d)	E.R.P.	
					(dB m)	(mW)
824.2	V	29.67	3.24	-4.85	21.58	143.88
824.2	H	30.13	3.24	-4.85	22.04	159.96
836.6	V	29.76	3.45	-5.14	21.17	130.92
836.6	H	26.37	3.45	-5.14	17.78	59.98
848.8	V	33.27	3.52	-4.05	25.70	371.54
848.8	H	25.74	3.52	-4.05	18.17	65.61

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GSM 1 900

Frequency (MHz)	Ant. Pol. (H/V)	S.G level + Amp. (dB m)	Cable loss (dB)	Ant. gain (dB i)	E.I.R.P.	
					(dB m)	(mW)
1 850.2	V	23.53	4.33	8.53	27.73	592.93
1 850.2	H	13.35	4.33	8.53	17.55	56.89
1 880.0	V	21.68	4.34	8.63	25.97	395.37
1 880.0	H	13.77	4.34	8.63	18.06	63.97
1 909.8	V	22.82	4.36	8.59	27.05	506.99
1 909.8	H	15.98	4.36	8.59	20.21	104.95

GSM 1 900 EDGE

Frequency (MHz)	Ant. Pol. (H/V)	S.G level + Amp. (dB m)	Cable loss (dB)	Ant. gain (dB i)	E.I.R.P.	
					(dB m)	(mW)
1 850.2	V	19.67	4.33	8.53	23.87	243.78
1 850.2	H	12.90	4.33	8.53	17.10	51.29
1 880.0	V	15.33	4.34	8.63	19.62	91.62
1 880.0	H	8.63	4.34	8.63	12.92	19.59
1 909.8	V	16.09	4.36	8.59	20.32	107.65
1 909.8	H	11.72	4.36	8.59	15.95	39.36

Remark;

1. E.R.P. & E.I.R.P. = [S.G level + Amp.](dB m) - Cable loss(dB) + Ant. gain (dB d/dB i)

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DC 12v
WCDMA 2

Frequency (MHz)	Ant. Pol. (H/V)	S.G level + Amp. (dB m)	Cable loss (dB)	Ant. gain (dB i)	E.I.R.P.	
					(dB m)	(mW)
1 852.4	V	16.13	4.33	8.54	20.34	108.14
1 852.4	H	9.00	4.33	8.54	13.21	20.94
1 880.0	V	18.68	4.34	8.63	22.97	198.15
1 880.0	H	9.55	4.34	8.63	13.84	24.21
1 907.6	V	17.27	4.36	8.62	21.53	142.23
1 907.6	H	10.29	4.36	8.62	14.55	28.51

WCDMA 5

Frequency (MHz)	Ant. Pol. (H/V)	S.G level + Amp. (dB m)	Cable loss (dB)	Ant. gain (dB d)	E.R.P.	
					(dB m)	(mW)
826.4	V	29.62	3.31	-5.18	21.13	129.72
826.4	H	25.02	3.31	-5.18	16.53	44.98
836.6	V	29.69	3.45	-5.14	21.10	128.82
836.6	H	23.63	3.45	-5.14	15.04	31.92
846.6	V	30.16	3.51	-4.25	22.40	173.78
846.6	H	24.61	3.51	-4.25	16.85	48.42

Remark;

1. E.R.P. & E.I.R.P. = [S.G level + Amp.](dB m) - Cable loss(dB) + Ant. gain (dB d/dB i)

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A4(210 mm x 297 mm)

DC 24v

GSM 850

Frequency (MHz)	Ant. Pol. (H/V)	S.G level + Amp. (dB m)	Cable loss (dB)	Ant. gain (dB d)	E.R.P.	
					(dB m)	(mW)
824.2	V	38.48	3.24	-4.85	30.39	1 093.96
824.2	H	37.07	3.24	-4.85	28.98	790.68
836.6	V	38.53	3.45	-5.14	29.94	986.28
836.6	H	35.11	3.45	-5.14	26.52	448.75
848.8	V	39.27	3.52	-4.05	31.70	1 479.11
848.8	H	33.64	3.52	-4.05	26.07	404.58

GSM 850 EDGE

Frequency (MHz)	Ant. Pol. (H/V)	S.G level + Amp. (dB m)	Cable loss (dB)	Ant. gain (dB d)	E.R.P.	
					(dB m)	(mW)
824.2	V	30.02	3.24	-4.85	21.93	155.96
824.2	H	29.60	3.24	-4.85	21.51	141.58
836.6	V	30.00	3.45	-5.14	21.41	138.36
836.6	H	26.75	3.45	-5.14	18.16	65.46
848.8	V	32.82	3.52	-4.05	25.25	334.97
848.8	H	26.28	3.52	-4.05	18.71	74.30

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GSM 1 900

Frequency (MHz)	Ant. Pol. (H/V)	S.G level + Amp. (dB m)	Cable loss (dB)	Ant. gain (dB i)	E.I.R.P.	
					(dB m)	(mW)
1 850.2	V	23.19	4.33	8.53	27.39	548.28
1 850.2	H	13.35	4.33	8.53	17.55	56.89
1 880.0	V	21.24	4.34	8.63	25.53	357.27
1 880.0	H	13.84	4.34	8.63	18.13	65.01
1 909.8	V	22.97	4.36	8.59	27.20	524.81
1 909.8	H	16.28	4.36	8.59	20.51	112.46

GSM 1 900 EDGE

Frequency (MHz)	Ant. Pol. (H/V)	S.G level + Amp. (dB m)	Cable loss (dB)	Ant. gain (dB i)	E.I.R.P.	
					(dB m)	(mW)
1 850.2	V	19.53	4.33	8.53	23.73	236.05
1 850.2	H	12.63	4.33	8.53	16.83	48.19
1 880.0	V	15.09	4.34	8.63	19.38	86.70
1 880.0	H	8.19	4.34	8.63	12.48	17.70
1 909.8	V	16.69	4.36	8.59	20.92	123.59
1 909.8	H	11.88	4.36	8.59	16.11	40.83

Remark;

1. E.R.P. & E.I.R.P. = [S.G level + Amp.](dB m) - Cable loss(dB) + Ant. gain (dB d/dB i)

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DC 24v

WCDMA 2

Frequency (MHz)	Ant. Pol. (H/V)	S.G level + Amp. (dB m)	Cable loss (dB)	Ant. gain (dB i)	E.I.R.P.	
					(dB m)	(mW)
1 852.4	V	16.07	4.33	8.54	20.28	106.66
1 852.4	H	8.73	4.33	8.54	12.94	19.68
1 880.0	V	18.59	4.34	8.63	22.88	194.09
1 880.0	H	9.68	4.34	8.63	13.97	24.95
1 907.6	V	17.62	4.36	8.62	21.88	154.17
1 907.6	H	10.12	4.36	8.62	14.38	27.42

WCDMA 5

Frequency (MHz)	Ant. Pol. (H/V)	S.G level + Amp. (dB m)	Cable loss (dB)	Ant. gain (dB d)	E.R.P.	
					(dB m)	(mW)
826.4	V	29.66	3.31	-5.18	21.17	130.92
826.4	H	25.31	3.31	-5.18	16.82	48.08
836.6	V	29.97	3.45	-5.14	21.38	137.40
836.6	H	24.20	3.45	-5.14	15.61	36.39
846.6	V	30.37	3.51	-4.25	22.61	182.39
846.6	H	24.56	3.51	-4.25	16.80	47.86

Remark;

1. E.R.P. & E.I.R.P. = [S.G level + Amp.](dB m) - Cable loss(dB) + Ant. gain (dB d/dB i)

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2.5. Spurious radiated emission

- Measured output Power : 31.67 dB m = 1.468 9 W
- Modulation Signal : GSM 850
- Distance : 3 meters
- Limit : $43 + 10\log_{10}(W) = 44.67$ dB c

DC 12V

Frequency (MHz)	Ant. Pol. (H/V)	S.G level + Amp. (dB m)	Cable loss (dB)	Ant. gain (dB d)	E.R.P. (dB m)	dB c	Margin (dB)
Low Channel (824.2 MHz)							
1 648.27	V	-21.15	4.01	5.99	-19.17	50.84	6.17
1 648.32	H	-22.27	4.01	5.99	-20.29	51.96	7.29
2 472.38	V	-34.72	4.80	7.02	-32.50	64.17	19.50
2 472.56	H	-43.11	4.80	7.01	-40.90	72.57	27.90
3 296.52	V	-32.24	5.52	6.69	-31.07	62.74	18.07
3 296.55	H	-39.41	5.52	6.69	-38.24	69.91	25.24
4 120.64	V	-28.23	6.70	7.15	-27.78	59.45	14.78
4 120.77	H	-29.38	6.70	7.15	-28.93	60.60	15.93
4 944.85	V	-28.70	7.32	7.66	-28.36	60.03	15.36
4 944.75	H	-32.70	7.32	7.66	-32.36	64.03	19.36
5 769.42	V	-43.06	7.90	9.13	-41.83	73.50	28.83
5 771.13	H	-45.52	7.90	9.13	-44.29	75.96	31.29
6 594.19	V	-45.91	8.31	9.16	-45.06	76.73	32.06
6 592.86	H	-45.44	8.31	9.16	-44.59	76.26	31.59
7 418.26	V	-31.18	9.24	9.85	-30.57	62.24	17.57
7 418.38	H	-34.22	9.24	9.85	-33.61	65.28	20.61

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RTT5041-20(2015.10.01)(3)

Tel. +82 31 428 5700 / Fax. +82 31 427 2370

A4(210 mm x 297 mm)

Frequency (MHz)	Ant. Pol. (H/V)	S.G level + Amp. (dB m)	Cable loss (dB)	Ant. gain (dB d)	E.R.P. (dB m)	dB c	Margin (dB)
Middle Channel (836.6 MHz)							
1 673.17	V	-26.78	4.06	6.18	-24.66	56.33	11.66
1 673.10	H	-27.01	4.06	6.18	-24.89	56.56	11.89
2 510.02	V	-43.63	4.82	6.97	-41.48	73.15	28.48
2 509.76	H	-44.09	4.82	6.97	-41.94	73.61	28.94
3 346.60	V	-46.10	5.68	6.90	-44.88	76.55	31.88
3 346.39	H	-49.32	5.68	6.90	-48.10	79.77	35.10
4 182.68	V	-37.18	6.83	7.10	-36.91	68.58	23.91
4 182.64	H	-32.95	6.83	7.10	-32.68	64.35	19.68
5 019.47	V	-35.54	7.46	7.81	-35.19	66.86	22.19
5 019.89	H	-37.30	7.46	7.81	-36.95	68.62	23.95
5 856.20	V	-44.61	7.79	9.18	-43.22	74.89	30.22
5 856.07	H	-49.39	7.79	9.18	-48.00	79.67	35.00
6 693.13	V	-48.67	8.30	9.24	-47.73	79.40	34.73
6 693.57	H	-47.79	8.30	9.24	-46.85	78.52	33.85
7 529.20	V	-39.12	9.06	9.68	-38.50	70.17	25.50
7 529.72	H	-43.31	9.06	9.68	-42.69	74.36	29.69

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RTT5041-20(2015.10.01)(3)

Tel. +82 31 428 5700 / Fax. +82 31 427 2370

A4(210 mm x 297 mm)

Frequency (MHz)	Ant. Pol. (H/V)	S.G level + Amp. (dB m)	Cable loss (dB)	Ant. gain (dB d)	E.R.P. (dB m)	dB c	Margin (dB)
High Channel (848.8 MHz)							
1 697.68	V	-29.71	4.11	6.36	-27.46	59.13	14.46
1 697.55	H	-31.59	4.11	6.36	-29.34	61.01	16.34
2 546.48	V	-43.55	4.88	6.88	-41.55	73.22	28.55
2 546.31	H	-44.45	4.87	6.88	-42.44	74.11	29.44
3 395.21	V	-45.56	5.84	7.11	-44.29	75.96	31.29
3 395.10	H	-53.18	5.84	7.11	-51.91	83.58	38.91
4 243.60	V	-41.91	6.91	7.01	-41.81	73.48	28.81
4 243.79	H	-38.17	6.91	7.01	-38.07	69.74	25.07
5 092.36	V	-35.04	7.53	8.18	-34.39	66.06	21.39
5 093.11	H	-35.81	7.53	8.19	-35.15	66.82	22.15
5 941.70	V	-47.46	7.72	9.09	-46.09	77.76	33.09
5 942.03	H	-50.72	7.72	9.09	-49.35	81.02	36.35
6 790.96	V	-45.74	8.55	9.55	-44.74	76.41	31.74
6 790.63	H	-46.37	8.55	9.55	-45.37	77.04	32.37
7 639.13	V	-45.03	9.01	9.58	-44.46	76.13	31.46
7 639.75	H	-45.72	9.01	9.58	-45.15	76.82	32.15

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RTT5041-20(2015.10.01)(3)

Tel. +82 31 428 5700 / Fax. +82 31 427 2370

A4(210 mm x 297 mm)

- Measured output Power : 25.70 dB m = 0.371 5 W
- Modulation Signal : GSM 850 EDGE
- Distance : 3 meters
- Limit : $43 + 10\log_{10}(W) = 38.70$ dB c

DC 12V

Frequency (MHz)	Ant. Pol. (H/V)	S.G level + Amp. (dB m)	Cable loss (dB)	Ant. gain (dB d)	E.R.P. (dB m)	dB c	Margin (dB)
Low Channel (824.2 MHz)							
1 648.38	V	-21.19	4.01	5.99	-19.21	44.91	6.21
1 648.22	H	-23.37	4.01	5.99	-21.39	47.09	8.39
2 472.36	V	-38.43	4.80	7.02	-36.21	61.91	23.21
2 472.46	H	-42.19	4.80	7.02	-39.97	65.67	26.97
3 296.49	V	-33.97	5.52	6.69	-32.80	58.50	19.80
3 296.77	H	-38.67	5.52	6.69	-37.50	63.20	24.50
4 121.25	V	-29.91	6.70	7.15	-29.46	55.16	16.46
4 120.69	H	-29.27	6.70	7.15	-28.82	54.52	15.82
4 945.12	V	-29.88	7.32	7.66	-29.54	55.24	16.54
4 945.19	H	-29.28	7.32	7.66	-28.94	54.64	15.94
5 769.75	V	-45.03	7.90	9.13	-43.80	69.50	30.80
5 769.75	H	-48.75	7.90	9.13	-47.52	73.22	34.52
6 593.60	V	-50.61	8.31	9.16	-49.76	75.46	36.76
6 594.27	H	-47.61	8.31	9.16	-46.76	72.46	33.76
7 417.93	V	-47.89	9.25	9.85	-47.29	72.99	34.29
7 417.93	H	-50.52	9.25	9.85	-49.92	75.62	36.92

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RTT5041-20(2015.10.01)(3)

Tel. +82 31 428 5700 / Fax. +82 31 427 2370

A4(210 mm x 297 mm)

Frequency (MHz)	Ant. Pol. (H/V)	S.G level + Amp. (dB m)	Cable loss (dB)	Ant. gain (dB d)	E.R.P. (dB m)	dB c	Margin (dB)
Middle Channel (836.6 MHz)							
1 673.14	V	-26.38	4.06	6.18	-24.26	49.96	11.26
1 673.23	H	-31.68	4.06	6.18	-29.56	55.26	16.56
2 509.58	V	-43.81	4.82	6.97	-41.66	67.36	28.66
2 509.67	H	-45.04	4.82	6.97	-42.89	68.59	29.89
3 346.12	V	-45.99	5.68	6.90	-44.77	70.47	31.77
3 346.31	H	-54.31	5.68	6.90	-53.09	78.79	40.09
4 183.30	V	-37.82	6.83	7.10	-37.55	63.25	24.55
4 182.75	H	-36.01	6.83	7.10	-35.74	61.44	22.74
5 020.09	V	-34.47	7.46	7.81	-34.12	59.82	21.12
5 019.24	H	-37.97	7.46	7.81	-37.62	63.32	24.62
5 856.29	V	-45.39	7.79	9.18	-44.00	69.70	31.00
5 856.36	H	-50.47	7.79	9.18	-49.08	74.78	36.08
6 693.15	V	-52.90	8.30	9.24	-51.96	77.66	38.96
6 693.52	H	-47.84	8.30	9.24	-46.90	72.60	33.90
7 529.82	V	-41.75	9.06	9.68	-41.13	66.83	28.13
7 529.63	H	-43.83	9.06	9.68	-43.21	68.91	30.21

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RTT5041-20(2015.10.01)(3)

Tel. +82 31 428 5700 / Fax. +82 31 427 2370

A4(210 mm x 297 mm)

Frequency (MHz)	Ant. Pol. (H/V)	S.G level + Amp. (dB m)	Cable loss (dB)	Ant. gain (dB d)	E.R.P. (dB m)	dB c	Margin (dB)
High Channel (848.8 MHz)							
1 697.46	V	-29.36	4.11	6.36	-27.11	52.81	14.11
1 697.64	H	-32.40	4.11	6.36	-30.15	55.85	17.15
2 546.19	V	-43.98	4.87	6.88	-41.97	67.67	28.97
2 546.61	H	-44.72	4.88	6.88	-42.72	68.42	29.72
3 394.98	V	-46.55	5.84	7.11	-45.28	70.98	32.28
3 395.13	H	-55.29	5.84	7.11	-54.02	79.72	41.02
4 244.01	V	-42.67	6.91	7.01	-42.57	68.27	29.57
4 243.74	H	-40.91	6.91	7.01	-40.81	66.51	27.81
5 093.18	V	-37.69	7.53	8.19	-37.03	62.73	24.03
5 093.21	H	-36.62	7.53	8.19	-35.96	61.66	22.96
5 941.63	V	-48.82	7.72	9.09	-47.45	73.15	34.45
5 941.04	H	-51.51	7.72	9.09	-50.14	75.84	37.14
6 791.07	V	-49.68	8.55	9.55	-48.68	74.38	35.68
6 790.88	H	-47.99	8.55	9.55	-46.99	72.69	33.99
7 639.87	V	-49.06	9.01	9.58	-48.49	74.19	35.49
7 639.53	H	-46.52	9.01	9.58	-45.95	71.65	32.95

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RTT5041-20(2015.10.01)(3)

Tel. +82 31 428 5700 / Fax. +82 31 427 2370

A4(210 mm x 297 mm)

- Measured output Power : 27.73 dB m = 0.592 9 W
- Modulation Signal : GSM 1 900
- Distance : 3 meters
- Limit : $43 + 10\log_{10}(W) = 40.73$ dB c

DC 12V

Frequency (MHz)	Ant. Pol. (H/V)	S.G level + Amp. (dB m)	Cable loss (dB)	Ant. gain (dB i)	E.I.R.P. (dB m)	dB c	Margin (dB)
Low Channel (1 850.2 MHz)							
3 700.65	V	-45.31	5.96	9.06	-42.21	69.94	29.21
3 700.30	H	-46.23	5.96	9.06	-43.13	70.86	30.13
5 550.57	V	-48.00	7.53	10.63	-44.90	72.63	31.90
5 550.86	H	-47.55	7.53	10.63	-44.45	72.18	31.45
7 400.98	V	-40.38	9.29	12.03	-37.64	65.37	24.64
7 400.79	H	-44.33	9.29	12.03	-41.59	69.32	28.59
Middle Channel (1 880.0 MHz)							
3 759.91	V	-46.48	6.26	9.12	-43.62	71.35	30.62
3 760.16	H	-50.74	6.26	9.13	-47.87	75.60	34.87
5 642.25	V	-54.61	7.65	10.92	-51.34	79.07	38.34
5 643.13	H	-51.38	7.65	10.92	-48.11	75.84	35.11
7 517.76	V	-54.15	9.05	11.83	-51.37	79.10	38.37
7 517.42	H	-52.95	9.05	11.83	-50.17	77.90	37.17
High Channel (1 909.8 MHz)							
3 821.96	V	-46.07	6.52	9.15	-43.44	71.17	30.44
3 819.74	H	-52.23	6.52	9.15	-49.60	77.33	36.60
5 727.35	V	-53.07	7.86	11.27	-49.66	77.39	36.66
5 727.11	H	-50.92	7.86	11.27	-47.51	75.24	34.51
7 636.95	V	-54.16	9.02	11.73	-51.45	79.18	38.45
7 638.48	H	-50.25	9.01	11.73	-47.53	75.26	34.53

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RTT5041-20(2015.10.01)(3)

Tel. +82 31 428 5700 / Fax. +82 31 427 2370

A4(210 mm x 297 mm)

- Measured output Power : 23.87 dB m = 0.243 8 W
- Modulation Signal : GSM 1 900 EDGE
- Distance : 3 meters
- Limit : $43 + 10\log_{10}(W) = 36.87$ dB c

DC 12V

Frequency (MHz)	Ant. Pol. (H/V)	S.G level + Amp. (dB m)	Cable loss (dB)	Ant. gain (dB i)	E.I.R.P. (dB m)	dB c	Margin (dB)
Low Channel (1 850.2 MHz)							
3 700.44	V	-47.65	5.96	9.06	-44.55	68.42	31.55
3 700.40	H	-45.88	5.96	9.06	-42.78	66.65	29.78
5 550.70	V	-50.73	7.53	10.63	-47.63	71.50	34.63
5 550.83	H	-48.74	7.53	10.63	-45.64	69.51	32.64
7 400.57	V	-42.98	9.29	12.03	-40.24	64.11	27.24
7 400.66	H	-48.23	9.29	12.03	-45.49	69.36	32.49
Middle Channel (1 880.0 MHz)							
3 760.00	V	-47.70	6.26	9.13	-44.83	68.70	31.83
3 760.00	H	-53.78	6.26	9.13	-50.91	74.78	37.91
High Channel (1 909.8 MHz)							
3 819.75	V	-47.01	6.52	9.15	-44.38	68.25	31.38
3 819.69	H	-54.45	6.52	9.15	-51.82	75.69	38.82

Remark;

1. E.R.P. & E.I.R.P. = S.G level (dB m) - Cable loss (dB) + Ant. gain (dB d/dB i)

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RTT5041-20(2015.10.01)(3)

Tel. +82 31 428 5700 / Fax. +82 31 427 2370

A4(210 mm x 297 mm)

- Measured output Power : 22.97 dB m = 0.198 2 W
- Modulation Signal : WCDMA 2
- Distance : 3 meters
- Limit : $43 + 10\log_{10}(W) = 35.97$ dB c

DC 12V

Frequency (MHz)	Ant. Pol. (H/V)	S.G level + Amp. (dB m)	Cable loss (dB)	Ant. gain (dB i)	E.I.R.P. (dB m)	dB c	Margin (dB)
Low Channel (1 852.4 MHz)							
3 702.05	V	-50.63	5.97	9.07	-47.53	70.50	34.53
3 706.45	H	-52.13	5.99	9.07	-49.05	72.02	36.05
Middle Channel (1 880.0 MHz)							
3 762.49	V	-49.16	6.27	9.13	-46.30	69.27	33.30
3 757.34	H	-51.47	6.25	9.12	-48.60	71.57	35.60
High Channel (1 907.6 MHz)							
3 817.43	V	-47.69	6.51	9.15	-45.05	68.02	32.05
3 816.34	H	-53.27	6.51	9.15	-50.63	73.60	37.63

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RTT5041-20(2015.10.01)(3)

Tel. +82 31 428 5700 / Fax. +82 31 427 2370

A4(210 mm x 297 mm)

- Measured output Power : 22.40 dB m = 0.173 8 W
- Modulation Signal : WCDMA 5
- Distance : 3 meters
- Limit : $43 + 10\log_{10}(W) = 35.40$ dB c

DC 12V

Frequency (MHz)	Ant. Pol. (H/V)	S.G level + Amp. (dB m)	Cable loss (dB)	Ant. gain (dB d)	E.R.P. (dB m)	dB c	Margin (dB)
Low Channel (826.4 MHz)							
1 650.34	V	-31.26	4.01	6.00	-29.27	51.67	16.27
1 650.46	H	-31.49	4.01	6.00	-29.50	51.90	16.50
2 482.15	V	-43.85	4.80	7.01	-41.64	64.04	28.64
2 482.38	H	-42.53	4.80	7.01	-40.32	62.72	27.32
3 301.76	V	-41.25	5.54	6.71	-40.08	62.48	27.08
3 300.63	H	-43.18	5.53	6.70	-42.01	64.41	29.01
4 127.09	V	-44.46	6.71	7.14	-44.03	66.43	31.03
4 136.81	H	-38.85	6.73	7.14	-38.44	60.84	25.44
4 952.23	V	-34.70	7.34	7.66	-34.38	56.78	21.38
4 952.64	H	-36.58	7.34	7.66	-36.26	58.66	23.26
Middle Channel (836.6 MHz)							
1 670.67	V	-35.32	4.06	6.16	-33.22	55.62	20.22
1 670.73	H	-36.25	4.06	6.16	-34.15	56.55	21.15
2 507.03	V	-47.43	4.82	6.97	-45.28	67.68	32.28
2 506.71	H	-47.03	4.82	6.97	-44.88	67.28	31.88
3 342.70	V	-50.96	5.67	6.88	-49.75	72.15	36.75
3 353.46	H	-55.60	5.71	6.93	-54.38	76.78	41.38
4 177.79	V	-49.96	6.82	7.10	-49.68	72.08	36.68
4 187.52	H	-46.63	6.84	7.10	-46.37	68.77	33.37
5 011.98	V	-45.64	7.45	7.77	-45.32	67.72	32.32
5 017.30	H	-43.58	7.46	7.80	-43.24	65.64	30.24

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Frequency (MHz)	Ant. Pol. (H/V)	S.G level + Amp. (dB m)	Cable loss (dB)	Ant. gain (dB d)	E.R.P. (dB m)	dB c	Margin (dB)
High Channel (846.6 MHz)							
1 691.27	V	-38.30	4.10	6.31	-36.09	58.49	23.09
1 690.84	H	-40.06	4.10	6.31	-37.85	60.25	24.85
2 536.88	V	-48.50	4.86	6.90	-46.46	68.86	33.46
2 536.70	H	-46.51	4.86	6.90	-44.47	66.87	31.47
3 384.17	V	-51.46	5.81	7.06	-50.21	72.61	37.21
3 388.10	H	-56.64	5.82	7.08	-55.38	77.78	42.38
4 233.80	V	-50.73	6.90	7.03	-50.60	73.00	37.60
4 226.70	H	-50.97	6.89	7.04	-50.82	73.22	37.82
5 085.27	V	-48.26	7.53	8.15	-47.64	70.04	34.64
5 085.39	H	-43.19	7.53	8.15	-42.57	64.97	29.57

Remark;

1. E.R.P. & E.I.R.P. = S.G level (dB m) - Cable loss (dB) + Ant. gain (dB d/dB i)

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RTT5041-20(2015.10.01)(3)

Tel. +82 31 428 5700 / Fax. +82 31 427 2370

A4(210 mm x 297 mm)

- Measured output Power : 31.70 dB m = 1.479 1 W
- Modulation Signal : GSM 850
- Distance : 3 meters
- Limit : $43 + 10\log_{10}(W) = 44.70$ dB c

DC 24V

Frequency (MHz)	Ant. Pol. (H/V)	S.G level + Amp. (dB m)	Cable loss (dB)	Ant. gain (dB d)	E.R.P. (dB m)	dB c	Margin (dB)
Low Channel (824.2 MHz)							
1 648.77	V	-20.71	4.01	5.99	-18.73	50.43	5.73
1 646.12	H	-23.03	4.00	5.97	-21.06	52.76	8.06
2 472.60	V	-34.59	4.80	7.01	-32.38	64.08	19.38
2 472.39	H	-43.10	4.80	7.02	-40.88	72.58	27.88
3 296.77	V	-31.99	5.52	6.69	-30.82	62.52	17.82
3 297.00	H	-39.66	5.52	6.69	-38.49	70.19	25.49
4 120.80	V	-28.78	6.70	7.15	-28.33	60.03	15.33
4 121.38	H	-31.48	6.70	7.15	-31.03	62.73	18.03
4 945.36	V	-29.77	7.33	7.66	-29.44	61.14	16.44
4 945.38	H	-32.76	7.33	7.66	-32.43	64.13	19.43
5 768.99	V	-43.19	7.90	9.13	-41.96	73.66	28.96
5 769.55	H	-45.82	7.90	9.13	-44.59	76.29	31.59
6 593.45	V	-45.72	8.31	9.16	-44.87	76.57	31.87
6 594.27	H	-46.63	8.31	9.16	-45.78	77.48	32.78
7 417.80	V	-32.46	9.25	9.85	-31.86	63.56	18.86
7 417.80	H	-34.99	9.25	9.85	-34.39	66.09	21.39

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RTT5041-20(2015.10.01)(3)

Tel. +82 31 428 5700 / Fax. +82 31 427 2370

A4(210 mm x 297 mm)

Frequency (MHz)	Ant. Pol. (H/V)	S.G level + Amp. (dB m)	Cable loss (dB)	Ant. gain (dB d)	E.R.P. (dB m)	dB c	Margin (dB)
Middle Channel (836.6 MHz)							
1 673.13	V	-26.43	4.06	6.18	-24.31	56.01	11.31
1 673.24	H	-31.40	4.06	6.18	-29.28	60.98	16.28
2 510.01	V	-42.20	4.82	6.97	-40.05	71.75	27.05
2 509.42	H	-42.60	4.82	6.97	-40.45	72.15	27.45
3 346.43	V	-49.10	5.68	6.90	-47.88	79.58	34.88
3 346.67	H	-51.68	5.68	6.90	-50.46	82.16	37.46
4 183.16	V	-44.06	6.83	7.10	-43.79	75.49	30.79
4 183.03	H	-38.89	6.83	7.10	-38.62	70.32	25.62
5 019.77	V	-34.72	7.46	7.81	-34.37	66.07	21.37
5 019.25	H	-38.68	7.46	7.81	-38.33	70.03	25.33
5 856.01	V	-44.38	7.79	9.18	-42.99	74.69	29.99
5 856.78	H	-50.13	7.79	9.18	-48.74	80.44	35.74
6 692.59	V	-47.72	8.30	9.23	-46.79	78.49	33.79
6 692.59	H	-47.86	8.30	9.23	-46.93	78.63	33.93
7 529.40	V	-45.54	9.06	9.68	-44.92	76.62	31.92
7 529.40	H	-44.86	9.06	9.68	-44.24	75.94	31.24

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Tel. +82 31 428 5700 / Fax. +82 31 427 2370

A4(210 mm x 297 mm)

Frequency (MHz)	Ant. Pol. (H/V)	S.G level + Amp. (dB m)	Cable loss (dB)	Ant. gain (dB d)	E.R.P. (dB m)	dB c	Margin (dB)
High Channel (848.8 MHz)							
1 697.33	V	-30.92	4.11	6.36	-28.67	60.37	15.67
1 697.77	H	-35.40	4.12	6.36	-33.16	64.86	20.16
2 546.41	V	-46.41	4.87	6.88	-44.40	76.10	31.40
2 546.72	H	-42.58	4.88	6.88	-40.58	72.28	27.58
3 395.59	V	-44.73	5.85	7.11	-43.47	75.17	30.47
3 395.01	H	-52.32	5.84	7.11	-51.05	82.75	38.05
4 244.07	V	-41.07	6.91	7.01	-40.97	72.67	27.97
4 244.19	H	-39.92	6.91	7.01	-39.82	71.52	26.82
5 092.72	V	-34.20	7.53	8.18	-33.55	65.25	20.55
5 082.97	H	-35.09	7.52	8.13	-34.48	66.18	21.48
4 942.29	V	-46.26	7.72	9.09	-44.89	76.59	31.89
5 941.90	H	-50.13	7.72	9.09	-48.76	80.46	35.76
6 790.40	V	-45.62	8.55	9.55	-44.62	76.32	31.62
6 790.40	H	-47.68	8.55	9.55	-46.68	78.38	33.68
7 639.20	V	-45.55	9.01	9.58	-44.98	76.68	31.98
7 639.20	H	-47.05	9.01	9.58	-46.48	78.18	33.48

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RTT5041-20(2015.10.01)(3)

Tel. +82 31 428 5700 / Fax. +82 31 427 2370

A4(210 mm x 297 mm)

- Measured output Power : 25.25 dB m = 0.335 0 W
- Modulation Signal : GSM 850 EDGE
- Distance : 3 meters
- Limit : $43 + 10\log_{10}(W) = 38.25$ dB c

DC 24V

Frequency (MHz)	Ant. Pol. (H/V)	S.G level + Amp. (dB m)	Cable loss (dB)	Ant. gain (dB d)	E.R.P. (dB m)	dB c	Margin (dB)
Low Channel (824.2 MHz)							
1 648.52	V	-21.58	4.01	5.99	-19.60	44.85	6.60
1 648.35	H	-23.10	4.01	5.99	-21.12	46.37	8.12
2 472.69	V	-37.53	4.80	7.01	-35.32	60.57	22.32
2 472.46	H	-41.14	4.80	7.02	-38.92	64.17	25.92
3 297.33	V	-33.13	5.52	6.69	-31.96	57.21	18.96
3 296.33	H	-39.95	5.52	6.69	-38.78	64.03	25.78
4 120.86	V	-29.47	6.70	7.15	-29.02	54.27	16.02
4 120.58	H	-32.58	6.70	7.15	-32.13	57.38	19.13
4 944.86	V	-28.99	7.32	7.66	-28.65	53.90	15.65
4 945.38	H	-30.31	7.33	7.66	-29.98	55.23	16.98
5 769.40	V	-43.53	7.90	9.13	-42.30	67.55	29.30
5 769.55	H	-46.72	7.90	9.13	-45.49	70.74	32.49
6 593.60	V	-51.59	8.31	9.16	-50.74	75.99	37.74
6 594.27	H	-46.65	8.31	9.16	-45.80	71.05	32.80
7 417.80	V	-48.87	9.25	9.85	-48.27	73.52	35.27
7 417.80	H	-49.91	9.25	9.85	-49.31	74.56	36.31

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A4(210 mm x 297 mm)

Frequency (MHz)	Ant. Pol. (H/V)	S.G level + Amp. (dB m)	Cable loss (dB)	Ant. gain (dB d)	E.R.P. (dB m)	dB c	Margin (dB)
Middle Channel (836.6 MHz)							
1 673.14	V	-24.36	4.06	6.18	-22.24	47.49	9.24
1 673.29	H	-29.63	4.06	6.18	-27.51	52.76	14.51
2 509.96	V	-41.85	4.82	6.97	-39.70	64.95	26.70
2 509.93	H	-43.24	4.82	6.97	-41.09	66.34	28.09
3 346.12	V	-45.97	5.68	6.90	-44.75	70.00	31.75
3 346.67	H	-51.21	5.68	6.90	-49.99	75.24	36.99
4 183.00	V	-35.57	6.83	7.10	-35.30	60.55	22.30
4 183.03	H	-37.60	6.83	7.10	-37.33	62.58	24.33
5 019.60	V	-36.53	7.46	7.81	-36.18	61.43	23.18
5 019.25	H	-37.66	7.46	7.81	-37.31	62.56	24.31
5 856.20	V	-44.80	7.79	9.18	-43.41	68.66	30.41
5 856.78	H	-49.64	7.79	9.18	-48.25	73.50	35.25
6 692.80	V	-52.60	8.30	9.23	-51.67	76.92	38.67
6 692.80	H	-47.66	8.30	9.23	-46.73	71.98	33.73
7 529.40	V	-44.07	9.06	9.68	-43.45	68.70	30.45
7 529.40	H	-45.66	9.06	9.68	-45.04	70.29	32.04

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A4(210 mm x 297 mm)

Frequency (MHz)	Ant. Pol. (H/V)	S.G level + Amp. (dB m)	Cable loss (dB)	Ant. gain (dB d)	E.R.P. (dB m)	dB c	Margin (dB)
High Channel (848.8 MHz)							
1 697.47	V	-28.86	4.11	6.36	-26.61	51.86	13.61
1 697.55	H	-30.96	4.11	6.36	-28.71	53.96	15.71
2 546.29	V	-42.05	4.87	6.88	-40.04	65.29	27.04
2 546.41	H	-43.11	4.87	6.88	-41.10	66.35	28.10
3 394.88	V	-46.26	5.84	7.11	-44.99	70.24	31.99
3 395.01	H	-53.52	5.84	7.11	-52.25	77.50	39.25
4 244.07	V	-42.28	6.91	7.01	-42.18	67.43	29.18
4 244.19	H	-41.12	6.91	7.01	-41.02	66.27	28.02
5 092.80	V	-42.70	7.53	8.18	-42.05	67.30	29.05
5 092.80	H	-37.37	7.53	8.18	-36.72	61.97	23.72
5 941.60	V	-49.59	7.72	9.09	-48.22	73.47	35.22
5 941.60	H	-50.18	7.72	9.09	-48.81	74.06	35.81
6 790.40	V	-48.90	8.55	9.55	-47.90	73.15	34.90
6 790.40	H	-46.90	8.55	9.55	-45.90	71.15	32.90
7 639.20	V	-51.33	9.01	9.58	-50.76	76.01	37.76
7 639.20	H	-47.63	9.01	9.58	-47.06	72.31	34.06

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RTT5041-20(2015.10.01)(3)

Tel. +82 31 428 5700 / Fax. +82 31 427 2370

A4(210 mm x 297 mm)

- Measured output Power : 27.39 dB m = 0.548 3 W
- Modulation Signal : GSM 1 900
- Distance : 3 meters
- Limit : $43 + 10\log_{10}(W) = 40.39$ dB c

DC 24V

Frequency (MHz)	Ant. Pol. (H/V)	S.G level + Amp. (dB m)	Cable loss (dB)	Ant. gain (dB i)	E.I.R.P. (dB m)	dB c	Margin (dB)
Low Channel (1 850.2 MHz)							
3 700.37	V	-45.55	5.96	9.06	-42.45	69.84	29.45
3 700.56	H	-45.55	5.96	9.06	-42.45	69.84	29.45
5 550.43	V	-49.49	7.53	10.63	-46.39	73.78	33.39
5 550.96	H	-48.82	7.53	10.63	-45.72	73.11	32.72
7 401.25	V	-41.99	9.29	12.03	-39.25	66.64	26.25
7 400.83	H	-44.83	9.29	12.03	-42.09	69.48	29.09
Middle Channel (1 880.0 MHz)							
3 759.76	V	-46.87	6.26	9.12	-44.01	71.40	31.01
3 760.09	H	-49.72	6.26	9.13	-46.85	74.24	33.85
5 642.27	V	-54.23	7.65	10.92	-50.96	78.35	37.96
5 642.27	H	-49.45	7.65	10.92	-46.18	73.57	33.18
7 517.19	V	-52.66	9.05	11.83	-49.88	77.27	36.88
7 517.19	H	-53.34	9.05	11.83	-50.56	77.95	37.56
High Channel (1 909.8 MHz)							
3 820.01	V	-45.79	6.52	9.15	-43.16	70.55	30.16
3 819.25	H	-51.42	6.52	9.15	-48.79	76.18	35.79
5 727.71	V	-52.05	7.86	11.27	-48.64	76.03	35.64
5 729.81	H	-51.67	7.86	11.27	-48.26	75.65	35.26
7 637.86	V	-53.48	9.01	11.73	-50.76	78.15	37.76
7 639.92	H	-49.28	9.01	11.73	-46.56	73.95	33.56

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Tel. +82 31 428 5700 / Fax. +82 31 427 2370

A4(210 mm x 297 mm)

- Measured output Power : 23.73 dB m = 0.236 0 W
- Modulation Signal : GSM 1 900 EDGE
- Distance : 3 meters
- Limit : $43 + 10\log_{10}(W) = 36.73$ dB c

DC 24V

Frequency (MHz)	Ant. Pol. (H/V)	S.G level + Amp. (dB m)	Cable loss (dB)	Ant. gain (dB i)	E.I.R.P. (dB m)	dB c	Margin (dB)
Low Channel (1 850.2 MHz)							
3 705.18	V	-46.52	5.99	9.07	-43.44	67.17	30.44
3 700.92	H	-44.78	5.96	9.06	-41.68	65.41	28.68
5 545.70	V	-51.62	7.54	10.63	-48.53	72.26	35.53
5 543.18	H	-48.01	7.54	10.63	-44.92	68.65	31.92
7 410.56	V	-43.94	9.26	12.01	-41.19	64.92	28.19
7 413.12	H	-47.93	9.26	12.01	-45.18	68.91	32.18
Middle Channel (1 880.0 MHz)							
3 762.30	V	-46.80	6.27	9.13	-43.94	67.67	30.94
3 761.18	H	-51.52	6.27	9.13	-48.66	72.39	35.66
High Channel (1 909.8 MHz)							
3 821.87	V	-46.88	6.52	9.15	-44.25	67.98	31.25
3 823.15	H	-52.87	6.53	9.15	-50.25	73.98	37.25

Remark;

1. E.R.P. & E.I.R.P. = S.G level (dB m) - Cable loss (dB) + Ant. gain (dB d/dB i)

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RTT5041-20(2015.10.01)(3)

Tel. +82 31 428 5700 / Fax. +82 31 427 2370

A4(210 mm x 297 mm)

- Measured output Power : 22.88 dB m = 0.194 1 W
- Modulation Signal : WCDMA 2
- Distance : 3 meters
- Limit : $43 + 10\log_{10}(W) = 35.88$ dB c

DC 24V

Frequency (MHz)	Ant. Pol. (H/V)	S.G level + Amp. (dB m)	Cable loss (dB)	Ant. gain (dB i)	E.I.R.P. (dB m)	dB c	Margin (dB)
Low Channel (1 852.4 MHz)							
3 703.41	V	-50.93	5.98	9.07	-47.84	70.72	34.84
3 702.57	H	-50.10	5.97	9.07	-47.00	69.88	34.00
Middle Channel (1 880.0 MHz)							
3 758.12	V	-49.36	6.25	9.12	-46.49	69.37	33.49
3 755.22	H	-51.75	6.24	9.12	-48.87	71.75	35.87
High Channel (1 907.6 MHz)							
3 816.71	V	-47.46	6.51	9.15	-44.82	67.70	31.82
3 809.09	H	-52.81	6.49	9.16	-50.14	73.02	37.14

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- Measured output Power : 22.61 dB m = 0.182 4 W
- Modulation Signal : WCDMA 5
- Distance : 3 meters
- Limit : $43 + 10\log_{10}(W) = 35.61$ dB c

DC 24V

Frequency (MHz)	Ant. Pol. (H/V)	S.G level + Amp. (dB m)	Cable loss (dB)	Ant. gain (dB d)	E.R.P. (dB m)	dB c	Margin (dB)
Low Channel (826.4 MHz)							
1 650.26	V	-38.20	4.01	6.00	-36.21	58.82	23.21
1 650.70	H	-31.83	4.01	6.01	-29.83	52.44	16.83
2 481.90	V	-43.84	4.80	7.01	-41.63	64.24	28.63
2 482.39	H	-43.18	4.80	7.01	-40.97	63.58	27.97
3 300.62	V	-40.26	5.53	6.70	-39.09	61.70	26.09
3 301.79	H	-44.90	5.54	6.71	-43.73	66.34	30.73
4 127.19	V	-43.18	6.71	7.14	-42.75	65.36	29.75
4 126.96	H	-39.02	6.71	7.14	-38.59	61.20	25.59
4 952.76	V	-35.04	7.34	7.66	-34.72	57.33	21.72
4 952.70	H	-36.88	7.34	7.66	-36.56	59.17	23.56
Middle Channel (836.6 MHz)							
1 670.80	V	-35.45	4.06	6.16	-33.35	55.96	20.35
1 670.80	H	-36.83	4.06	6.16	-34.73	57.34	21.73
2 506.06	V	-46.44	4.82	6.97	-44.29	66.90	31.29
2 507.16	H	-45.42	4.82	6.97	-43.27	65.88	30.27
3 342.00	V	-50.69	5.67	6.88	-49.48	72.09	36.48
3 350.69	H	-55.62	5.70	6.92	-54.40	77.01	41.40
4 187.53	V	-49.92	6.84	7.10	-49.66	72.27	36.66
4 177.22	H	-46.07	6.81	7.10	-45.78	68.39	32.78
5 013.08	V	-46.32	7.45	7.78	-45.99	68.60	32.99
5 011.57	H	-44.11	7.45	7.77	-43.79	66.40	30.79

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A4(210 mm x 297 mm)

Frequency (MHz)	Ant. Pol. (H/V)	S.G level + Amp. (dB m)	Cable loss (dB)	Ant. gain (dB d)	E.R.P. (dB m)	dB c	Margin (dB)
Low Channel (846.6 MHz)							
1 695.47	V	-38.25	4.11	6.34	-36.02	58.63	23.02
1 690.81	H	-39.37	4.10	6.31	-37.16	59.77	24.16
2 536.73	V	-47.82	4.86	6.90	-45.78	68.39	32.78
2 637.22	H	-44.59	4.98	6.83	-42.74	65.35	29.74
3 391.35	V	-52.49	5.83	7.09	-51.23	73.84	38.23
3 391.55	H	-57.07	5.83	7.09	-55.81	78.42	42.81
4 227.93	V	-51.49	6.89	7.04	-51.34	73.95	38.34
4 236.55	H	-51.23	6.90	7.02	-51.11	73.72	38.11
5 076.83	V	-47.89	7.52	8.10	-47.31	69.92	34.31
5 086.52	H	-43.08	7.53	8.15	-42.46	65.07	29.46

Remark;

1. E.R.P. & E.I.R.P. = S.G level (dB m) - Cable loss (dB) + Ant. gain (dB d/dB i)

- End of the Test Report -

The results shown in this test report refer only to the sample(s) tested unless otherwise stated. This test report cannot be reproduced, except in full, without prior written permission of the Company.

SGS Korea Co., Ltd. (Gunpo Laboratory) 4, LS-ro 182beon-gil, Gunpo-si, Gyeonggi-do, Korea, 15807 <http://www.sgsgroup.kr>

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Tel. +82 31 428 5700 / Fax. +82 31 427 2370

A4(210 mm x 297 mm)